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ANNUAL REPORT
OF THE
Secretary of Internal Affairs
OF THE
COMMONWEALTH OF PENNSYLVANIA



PART III
INDUSTRIAL STATISTICS.
VOL. XI

1882-83.

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COMMUNICATION.

DEPARTMENT OF INTERNAL AFFAIRS,

HARRISBURG, *May 6, 1884.*

To His Excellency ROBERT E. PATTISON,

Governor of Pennsylvania:

In compliance with the requirements of the Constitution, I have the honor to present you herewith, for transmission to the General Assembly, a report of this Department, Part III, Industrial Statistics, Vol. XI, 1882-83.

I am, very respectfully,

Your obedient servant,

J. SIMPSON AFRICA,

Secretary of Internal Affairs.



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REPORT
OF THE
BUREAU OF INDUSTRIAL STATISTICS.

LETTER OF TRANSMITTAL.

DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS, *May 1, 1884.*

Honorable J. SIMPSON AFRICA,

Secretary of Internal Affairs:

SIR: I have the honor to present herewith the eleventh annual report of the Bureau of Industrial Statistics, being the first during your official term as Secretary of Internal Affairs. The duties pertaining to this Bureau, which is created by the organic law of the State, have been defined in an act of the General Assembly entitled "An act regulating the election of the Secretary of Internal Affairs, defining his duties and fixing his salary," approved the 11th day of May, 1874. as follows, to wit:

"SECTION 4. The Secretary of Internal Affairs shall exercise all the powers and perform all the duties which, at the time of entering upon his office, shall appertain to the office of Surveyor General. His department shall embrace a Bureau of Industrial Statistics, the business of which shall be to impartially inquire into the relations of capital and labor, in their bearings upon the social, educational, and industrial welfare of all classes of working people, and to offer practical suggestions for the improvement of the same.

"The said bureau shall further collect, compile, and publish such statistics in regard to the wages of labor and the social condition of the laboring classes as may enable the people of the State to judge how far legislation can be invoked to correct the existing evils; and in order to facilitate the duties herein imposed, all corporations, firms, or individuals engaged in mining, manufacturing, or other business, and all persons working for wages within this Commonwealth, are hereby required to furnish such statistical information as the chief of said bureau may demand. The chief, or duly authorized deputy, shall have power to issue subpoenas, administer oaths, and take testimony in all matters relating to the duties herein re-

quired of said bureau. Any corporation, firm, or individual, doing business within this Commonwealth, who shall neglect or refuse, for thirty days, to answer questions by circular, or upon personal application, or who shall refuse to obey the subpoena and give testimony according to the provisions of this act, shall be liable to a penalty of one hundred dollars, to be collected by order of the commissioner of statistics in an action of debt, in which the Commonwealth of Pennsylvania shall be plaintiff. This bureau shall also be required to collect, compile, and publish annually the productive statistics of agriculture, mining, manufacturing, commercial, and other business interests of the State; and the act of the twelfth April, eighteen hundred and seventy-two, entitled 'An act to provide for the establishment of a bureau of statistics on the subject of labor and other purposes,' is hereby repealed from and after the first Tuesday of May, one thousand eight hundred and seventy-five."

1. The Duties of the Bureau.

It will be observed that the duties to be performed by this Bureau are comprehensive in their nature. The object to be accomplished is in connection with kindred departments in other States, to obtain such reliable information as will enable a just mode of settlement to be devised, of the many problems arising in the relations of capital and labor. To this end practical suggestions are requested as to the social, educational, and industrial welfare of all classes of working people. With a full knowledge of facts as they may be derived from statistics carefully prepared, practical suggestions will not only be made under the terms of the law, but recommendations of real value will be presented, based upon the facts, by many to whom the subject is one of vital interest. The problem to be solved, viz: The true relations of capital and labor to each other, and especially upon the welfare of the working people, has engaged the attention of our ablest thinkers for many years. Important as the problem has been in the past and as it is at present, the unprecedented growth of the country, not only in population but in industrial pursuits requiring the employment of large masses of men, renders its correct solution imperative to the happiness, prosperity, and welfare of the Nation in the future. Many of the difficulties which have heretofore presented themselves have arisen from a want of knowledge of the facts as they exist. When specific knowledge is wanting, mere intellect is of no avail, and can at best but devise specious theories. It is now generally appreciated that disaster to capital, suffering to the working classes, and misunderstandings resulting in bloodshed and loss of life, might have been averted had the whole truth been understood and wise counsel prevailed. It is for this reason that the Bureau of Industrial Statistics and similar organizations have been created under the laws of this and other States. Practical suggestions of value will only be accepted with confidence when based upon and in accordance with reliable information. I have, therefore, as chief of the Bureau deemed it to be

be my first duty to exercise great care in the collection of statistical information of a reliable kind. I have endeavored to maintain the organization of the Bureau as it existed, and to extend and perfect it in its details as far as practicable. The productive statistics of agriculture have been deemed of such great importance as to induce the creation of a "Board of Agriculture" independent of this Bureau, which collects agricultural statistics and publishes a report annually. I have, in consequence of the establishment of such board, followed the course adopted by my immediate predecessor, and directed special attention to the mining, manufacturing, commercial, and other business of the State. In making a compilation of a directory of the business interests of the State, great labor and care were required for the proper arrangement of the same. Blank forms have been drafted applicable to the character of the business investigated so that intelligent answers could be more readily obtained. Inquiries have been extended to additional industries, among which are included brewers, distillers, flour and grist-mills, slate, petroleum, and petroleum refineries. Nearly twelve thousand blanks were required and issued to those addressed on the 1st of January last. Returns in the majority of cases were promptly made with answers complete and satisfactory. In some cases, however, the answers were delayed, whilst in still others the information contained in the replies was meager. During the month of February about four thousand additional circulars were issued to delinquents to which prompt replies were made either by return of the blanks properly filled or by letter explaining the cause of neglect. The returns are now almost complete, as will be seen by the following:

Table showing the number of blanks issued and returned.

INDUSTRIES.	Number issued.	Number returned.	INDUSTRIES.	Number issued.	Number returned.
Agricultural implements, . .	101	93	Burr mill-stones,	1	1
Air-brakes,	1	1	Buttons,	7	7
Axes and saws,	11	9	Bull wheels,	4	4
Baskets,	5	4	Car builders,	5	4
Bath-tubs and bath-boilers, .	4	3	Carriages and wagons, . . .	74	64
Belts and hose,	10	10	Chemicals,	2	2
Bobbins and spools,	5	4	Cigars,	58	52
Bone and pearl goods,	2	2	Clothes-pins and shoe-pegs, .	10	5
Boots and shoes,	103	91	Coal, anthracite,	330	248
Box manufacturers and boat builders,	23	20	Coal, bituminous,	484	467
Brass and bronze,	41	34	Coffins and caskets,	6	6
Breweries,	227	191	Combs,	4	4
Bridge builders,	6	6	Cooperage,	29	26
Bricks, common,	228	211	Corks,	8	8
Bricks, fire and terra cotta, .	46	45	Crucibles,	5	3
Brick presses,	1	1	Cutlery,	2	2
Britannia ware,	2	1	Cordage,	25	24
Brooms,	13	13	Copper,	5	4
Brushes and brush blocks, . .	29	27	Distilleries,	71	65
			Emery & grinding machinery, .	2	2

TABLE—Continued.

INDUSTRIES.	Number is- sued.	Number re- turned.	INDUSTRIES.	Number is- sued.	Number re- turned.
Envelopes,	3	3	Pumps, (wooden,)	6	5
Employés,	434	351	Railroads, steam and horse, . .	249	179
Fancy leather goods,	5	5	Refrigerators,	5	3
Files,	12	8	Rubber goods,	6	4
Fire arms,	3	2	Salt,	7	7
Galvanizing,	3	1	Staves, shooks, heads, &c., . .	29	27
Gas-metres, gas-tanks, &c., . .	5	5	Sash, doors, and blinds, . . .	39	39
Gold beaters,	2	2	Scales,	9	9
Glass, flint and green,	57	47	Screws, brass and iron,	3	2
Glass, window,	24	22	Ship builders,	1	1
Glass sand,	5	4	Shoeblackening and stove polish	2	2
Glue,	4	3	Shingle-mills,	32	30
Hair cloth,	2	2	Shovels, spades, &c.,	9	9
Hair-pins,	1	1	Show cases,	7	6
Hardware,	12	10	Shafting, springs, and axles, . .	9	8
Harness and trunks,	27	24	Slate,	76	72
Hosiery needles,	2	2	Soaps and candles,	45	42
Hubs, spokes, felloes, and handles,	69	67	Spring mattresses,	5	3
Hose reels,	1	1	Smelting,	1	1
Iron—			Stair-rods,	1	1
Blast furnaces,	176	174	Sugar refineries,	8	7
Bloomaries and forges,	32	28	Surgical splints and elastic goods,	2	2
Boilers,	34	29	Silver and silver-plated ware, . .	12	12
Chains,	14	11	Tanks, wood and iron,	15	12
Fences and railings,	9	9	Tanneries,	640	580
Foundries, foundry-facings, and machine-shops,	762	675	Tannique,	1	1
Malleable iron,	2	2	Textiles—		
Nails, spikes, and rivets, . . .	3	3	Carpets and mats,	188	168
Nuts and bolts,	16	13	Cotton,	72	66
Ores, (iron,)	43	42	Cottons and woollens,	91	83
Pipes and tubes,	7	7	Hosiery and knit goods, . . .	130	113
Rolling-mills,	139	136	Hats,	65	54
Wire and wire goods,	24	20	Woollens,	180	162
Knobs and handles,	1	1	Yarns, cotton and woolen, . . .	98	88
Lasts,	3	2	Bleaching and dye works, . . .	40	32
Lead and lead shot,	5	5	Carders and fullers,	18	17
Lightning-rods,	3	3	Coverlets,	14	12
Locomotives,	5	5	Clothing,	26	26
Locks and safes,	15	12	Braids, tapes, &c.,	17	16
Lumber and saw-mills,	1,030	889	Felt goods,	3	3
Mantels,	2	2	Flax,	1	
Matches,	6	5	Jeans,	5	4
Malsters,	14	13	Lace and lace goods,	12	12
Milling, flour and grist,	3,781	3,269	Prints,	10	8
Morocco,	38	38	Quilts,	4	2
Musical instruments,	22	20	Reps and terries,	5	5
Nitro-glycerine and torpedoes, .	5	5	Shawls,	4	3
Oil cloths,	3	3	Shirts,	30	28
Oil and lubricants,	6	4	Shoddy,	9	8
Paints,	16	14	Silks,	7	7
Paper, straw-boards, &c., . . .	104	98	Towels,	3	3
Paper hangings,	4	4	Upholstered goods,	9	7
Pens,	2	2	Window shades,	7	6
Petroleum producers,	154	111	Neckwear,	7	5
Petroleum refiners,	68	55	Textile machinery,	8	8
Petroleum pipe lines,	2	2	Tiles,	2	2
Planing-mills,	300	282	Tin ware,	7	6
Potters,	53	50	Tools,	5	5
Powder and fuses,	13	11	Toys and traps,	4	3
			Type,	2	2

TABLE—Continued.

INDUSTRIES.	Number is- sued.	Number re- turned.	INDUSTRIES.	Number is- sued.	Number re- turned.
Umbrellas, parasols, &c., . .	13	13	Wooden ware,	26	21
Velocipedes,	1	1	Wringers and washing ma- chines,	12	12
Watches and watch-cases, . .	11	10	Zinc, spelter, and nickel, . .	3	3
Whips,	6	6			
White lead, litharge, putty, &c.	14	13			
Total of blanks issued,				11,765	
Total of blanks returned,					10,385

NOTE.—Blanks were not issued, as a general rule, when it was known that the manufacturer or operator was engaged in a business rated below \$5,000. Exception to this rule, however, was made when the industry, by reason of its almost universal existence throughout the State, though small in the individual sense, yet presented an aggregate of too much importance to be ignored.

About four hundred blanks containing inquiries were sent to workmen connected with various industries, and residing in various parts of the State. The inquiries made were in relation to the hours of labor; the healthfulness of the occupation; the danger, if any, to which they were liable; the number of days lost by sickness during the year; the combined outlay and loss of pay by reason of sickness in the family; the number of days unemployed in their regular business and the money loss in wages; the kind of workmen's houses and the sanitary condition of the surroundings. Inquiry was also made as to the strikes in their trade or occupation during the year, and the cause and outcome of the difficulties; also as to arbitration and the result. The inquiries made were answered promptly and intelligently. They will be found compiled under the proper heading in this report, together with a brief sketch of labor troubles within the State during the year 1883. My predecessor in previous reports published a history of the strikes in this State from their commencement down to and including the year 1882. The present sketch is made with a view of continuing such history during the year 1883. The strikes and lockouts, which more frequently occur in large mining and manufacturing districts, chiefly arise from disagreements, either upon demand for increased wages on the part of the employés or attempted reduction on the part of the employers. Both employers and employed are realizing that such method of settling difficulties or controversies not only entails great financial loss to both parties, but creates and nourishes feelings of bitterness and ill-will between those whose interests are dependent one upon the other, and who, if influenced by reason and common sense, should work harmoniously. The appreciation of a common interest by intelligent and thinking men—representatives of employer and employé—has resulted in efforts to compromise matters in dispute by amicable conference and mutual concessions. Where differences cannot be so settled the effort is being made to adjust

such differences by arbitration. The conferences which are being established between employer and employé, whilst they are not always effective in the settlement of the points at issue, nevertheless tend to produce kindly feelings instead of the bitter antagonisms which formerly prevailed. Through such intercourse each side acquires a knowledge of the causes and influences which operate on and actuate the other, and a desire is engendered on both sides to arrive at a fair understanding of the points at issue. In arriving at such understanding the labors of this Bureau and kindred organizations are of great importance. The statistical information thus obtainable of the condition of business and of labor throughout the country may dissipate the points in controversy, and be a complete answer to the arguments based oftentimes on mere conjecture and sometimes on gross misrepresentation. I find a great misapprehension exists among many persons as to the duties to be performed by this Bureau. It appears to be assumed that its chief business is to battle with corporations, and to expose the operations of assumed monopolies. I do not so understand its duties, nor do I propose that it shall be the instrument for the settlement of private pique or the gratification of personal animosities. Partisanship is no part of the duties of this Bureau. The effort to be made is the compilation of reliable statistics; the object to be accomplished is that through the knowledge thus obtained the interest of both labor and capital may be harmonized and promoted.

2. The Consolidation of the Reports of the Anthracite and Bituminous Mine Inspectors in One Volume and Issuance from One Department.

✓ The work of the mine inspectors in both the anthracite and bituminous regions is of great importance, and the reports of both regions contain matters of interest to all concerned in coal mining. But under the present condition of the law the best result from the expense incurred and the labor done is not attained. In the bituminous region there are six mine inspectors, who are required by law to make a record of such matters as are detailed in the act of Assembly prescribing their duties. Such record is to be made on or before the first day of November of each year, and is to be filed in the office of the Secretary of Internal Affairs, to be recorded and included in the annual report of his department. In the anthracite coal regions there are also six inspectors, who are required to make annual reports to the Governor of the Commonwealth at the close of every year, which reports are published by the Executive Department. The duties of the inspectors of both the bituminous and anthracite regions are substantially the same, or only so varied as is required by the difference in the methods of mining. Our coal-mining interest, whether bituminous or anthracite, so far constitutes one great industry as to render full information as to the workings of the one of great and practical importance to those interested in the other. It can be readily seen that to best effect a useful purpose the several reports from both sections should be published together in a single volume, (which would contain about four hundred and fifty pages,) and a sufficient number

printed for distribution among those specially interested. There are no valid reasons that I can conceive why industries so nearly identical as those of mining bituminous and anthracite coal should be under different departments, and the reports as to the one be embodied in the report of the Secretary of Internal Affairs, whilst the other is embraced among the documents issued by the Executive. Nor is there any reason why the records of bituminous coal-mining for the year should be ended on the first of November, whilst the reports as to the anthracite region are extended to the first of January. As the reports are at present printed, there is no arrangement for distribution even among the mine inspectors. There is a general and growing demand among parties interested for these reports, which, embodied as they are among documents of a general character, limits the supply by reason of the mode of printing, and thereby narrows their field of usefulness. The whole subject seems, under the organic law, properly to belong to the department of Internal Affairs. I would, therefore, respectfully suggest the propriety of bringing the subject to the attention of the Legislature, with a view of having the law so amended that the inspectors of both regions be required to report at the same time and to this department; such reports to be there filed, compiled, and published in one volume, and that they may be properly distributed among those for whose benefit they were designed.

2. Suggestions to Mine Inspectors.

Prof. James P. Kimball, geological rooms, Lehigh University, Bethlehem, Pa., has suggested that if the mine inspectors would include in their circulars to coal operators the following directions and questions, and include the answers to the same in their annual reports, such reports would be greatly increased in value and importance, viz :

First. To letter the coal seams according to the notation in the Second Geological Survey.

Second. To give the thickness of the coal seam.

Third. To give the thickness of the roof bench not mined.

Fourth. To give the thickness of the bottom bench not mined.

As most of the accidents from fall of slate and roof have reference to the third heading, the element of thickness is requisite to give value to facts otherwise presented. The information is indispensable to enable one to form an idea from these reports of the actual practice, and underlies in fact all the rest of the information given. I regard the suggestions of Prof. Kimball as valuable, and advise their adoption by the mine inspectors.

4. Complaints of Miners in reference to the Opposition to Check-weighmen.

It is alleged by a number of miners from the bituminous coal fields that opposition is made to and obstructions placed in the way of the checkweighman. The checkweighman is an agent of the miners, authorized by law, and is paid by them. It is part of his duty to balance the scales, and to oversee the weighing or measuring of coal as it comes from the mines. Interfer-

ences with such officer is manifestly unjust. The miners are not only entitled to payment for their labor according to their contract, but are entitled to know that they are receiving justice.

5. Imported Contract Labor.

It is charged that large contractors, through their agents, contract in Europe for labor, to be imported, to work at a price much below the minimum price paid to our own mechanics and laborers. The evil effects of such a system are manifest. The spirit of our institutions, whilst it protects capital, is to elevate labor. The importation of pauper labor is not only rank injustice to our own working people, but it is an unfair advantage taken of by legitimate contractors who are willing to pay fair wages for fair work. The social and moral position of the working class has heretofore been the pride of the Nation. It should be the endeavor of the Commonwealth to elevate it, not to lower it, as the competition created by the importation of ignorant and degraded paupers must necessarily do. To the contractor the gain is but for the moment, while the evil to the community is lasting. Under our system of government, the blessings springing from general education of the masses of the people are sought to be attained. The importation of paupers under the contract system is a blow at the interest of both labor and capital, and all just means should be adopted to prevent it.

6. Convict Contract Labor.

The same objections are urged against the system of convict contract labor in our prisons and penitentiaries, and is a subject which has agitated the minds of the working classes in a number of the leading manufacturing States for a number of years. It has, in fact, the same effect in lowering the standard of wages and depriving the honest workingman of the just reward of his labor, whilst there is not the same appearance of reason to justify it. Two reasons among others have been given in justification of contract labor: 1st. The reduction of prison expenses, and the relief from general taxation to that extent; and 2d. The elevation of the criminal by occupying his time in a useful and honorable pursuit; by promoting in him habits of industry, and in so educating him that at the end of his term of imprisonment he will have acquired the habits, knowledge, and disposition which will enable him to earn an honest living. It has been found, however, that the convict-contract system tends to degrade, not elevate the prisoner. The contractor, holding his labor in contempt, and actuated solely by his own selfish purposes, treats the prisoner as outside the pale of humanity. The direct expense is saved to the State, but the degradation of the prisoner is increased.

The practical effect of prison competition has been found to be the production of articles at so small a cost as to defy the competition of honest and law-abiding labor. The standard of honest wages is prejudiced, governed, and controlled by criminal labor. Under the convict-contract system, capital which regards labor as a brutal machine obtains an advantage over capital which employs honest men and seeks to elevate and benefit the

working classes. The evils resulting to the working people by the introduction of the unfair competition of imported pauper labor are the same as from contract-convict labor, whilst the objection of such importation is solely a temporary advantage gained by the contractor.

The contract-convict system was abolished in Pennsylvania by the enactment of a law under the General Assembly, and which was approved June 13, 1883, requiring that wages fixed by the authorities of the institution shall be allowed the prisoner, from which board, lodging, and clothing, and the cost of trial shall be deducted, and the balance paid to their families or dependents. In case none such appear, the amount shall be paid to the convict at the expiration of the term of imprisonment.

This law was to go into effect at the expiration of existing contracts. In connection with the above, a law was also enacted "to require a brand upon all goods, wares, merchandise, or other article or thing made for sale by convict labor in any penitentiary, reformatory, prison, school, or other establishment in which convict labor is employed." Dealing in convict-made goods not branded, whether made in Pennsylvania or any other State, is strictly prohibited under a penalty "of a fine not exceeding five hundred dollars and undergo an imprisonment not exceeding six months or both or either at the discretion of the court."

7. Employer's Liability.

Representatives of trades-union and other labor organizations have called my attention to the subject of the liability of employers to workmen for injuries received while in discharge of their duty, and have requested me to call the attention of the Legislature to the matter in the consideration of the existing laws relative to such liability.

To so frame the law as to afford justice to all parties is undoubtedly a work presenting difficulties. It requires patient investigation, a full understanding of the law as it exists at present, its construction by the courts, and its practical application. But it is a subject of great importance to the well-being of our working people, and whilst the rights of the employer should be fairly considered, the life and fortune not only of the employé, but also of his family, are at stake. The subject should receive the careful consideration of the Legislature. Upon this question I present, with approval, the views of Charles G. Fall, Esq., to the Massachusetts Bureau of Labor Statistics, where he ably discusses it, viz: "That the dictates of humanity, as well as the promptings of self-interest, stimulate employers of labor to do a great deal towards protecting the lives and limbs of their workmen there is no doubt. That they would not intentionally allow any neglect in the selection of workmen, of the materials used in the machinery worked is equally certain. But notwithstanding all this, there are doubtless many accidents and injuries occurring daily, which, with a little more precaution in the particulars mentioned, might have been prevented. Workmen generally are not in a position to say with whom they will work, or

what materials or machinery shall be used ; and if greater precautions are to be taken, they must be provided for by employers. If the ordinary dictates of humanity and self-interests are not sufficient to make life more secure, ought not their interest in the welfare of their workmen to be increased by imposing a heavier pecuniary responsibility? Where an appeal to the generous impulses of the heart is not sufficient protection, should not an appeal be made to the more subtle instincts of the pocket?"

8. Convention of Commissioners of Labor Statistics.

A meeting of the commissioners of labor statistics was convened September 25 in the office of the Ohio Bureau of Labor Statistics, at which the representatives of six bureaus of the eleven in existence were in attendance, representing the following States: Massachusetts, Pennsylvania, Ohio, New Jersey, Illinois, and Missouri. The object of this convention was to consult as to the best means of collecting information, and to propose some method of procedure by which the purposes for which such bureaus were created may prove the most beneficial. Upon the matter of keeping up the efficiency of the bureaus, it was unanimously agreed that everything of a partisan character should be entirely excluded, whether of a political, business, or a social nature. In maintenance of this view, the convention was addressed by the Hon. Carroll D. Wright, chief of the Bureau of Labor Statistics of Massachusetts, an acknowledged authority throughout the United States on labor statistics, and whose large experience and undoubted ability entitle his opinions to great weight. He asserted that there was no office of the Government in which civil service reform was more applicable than in these bureaus inasmuch as the duties incumbent upon its officials were of such a character that the citizen and not the partisan of any party had to be dealt with ; and the subjects that would require investigation were not in the interests of any distinct class, but pervaded society from the highest to the lowest, and that he thought the removal of an official who was educated in the details or duties pertaining to the office was to seriously impede the progress of the work. And in this connection I will here add what has been so well said by a distinguished statistician of the United States, that a " bureau of labor statistics should be so distinctly and decisively disconnected from politics, from dependence on organizations, whether of workingmen or employers, individual views or class interest, as to command the moral support of the whole body of citizens and receive the coöperation of all men of all occupations and all degrees, without reference, however, either to their degrees or their occupations."

9. The Necessity of Legislative Encouragement towards Promoting the best Interests of the Bureau.

The reports of the Bureau are becoming more sought after every year, so that the limited number of reports allowed your department are entirely inadequate to supply one half the demand. The supply of all previous issues was long since exhausted, except such as are necessarily kept in the library

of the Bureau. Literature of a statistical character is attaining such importance with the public that communications desiring special information on various subjects relating to the industrial classes of the State are so frequent that it entails a large correspondence upon the Bureau, requiring from the Chief close attention and considerable research. A State of such magnitude as that of Pennsylvania should show, at least, as much liberality as the States of Massachusetts, New Jersey, and others in appropriating funds that her industrial pursuits may be correctly gathered. The State of Massachusetts appropriates, annually, for contingent expenses, the sum of five thousand dollars for the use of the Bureau exclusive of the large amount appropriated each decade for census work. New Jersey appropriates three thousand dollars, and Michigan five thousand dollars, while the State of Pennsylvania, with its large extent of territory and its enormous industries in coal, iron, glass, lumber, leather, textile fabrics and numerous others, is allowed but the meager sum of two thousand dollars per annum, which is inadequate to carry out, as fully as should be, the work designed by law. While it is not intended that the Bureau should make a complete census of the State, it is required, however, that the productive interest of the State be published, and that the relation between capital and labor be shown in a clear and concise manner. To perform this duty as it ought to be done, necessitates the employment of experts to investigate thoroughly and impartially such questions as may come before it from time to time.

The following gentlemen: James M. Swank, Esq., "Secretary of the Iron and Steel Association of the United States;" T. C. Search, Esq., of "Fairmount Worsted Mills, Philadelphia;" S. L. Fisler, Esq., Secretary of the "Slate Exchange of Lehigh and Northampton counties," and Thomas McFeely, Esq., of the firm of Griscom & McFeely, Philadelphia, who have attained eminence in their respective spheres as statisticians, and whose practical knowledge upon the subjects upon which they have written for this report, are entitled to our thanks.

The Bureau is under special obligations to John O. Edwards, whose experience and energy entitles him to our commendation; and also to John L. Butler, Esq., attachés of this office.

JOEL B. McCAMANT,
Chief of Bureau.



ANTHRACITE COAL.

TABLE showing the number of collieries, number of persons employed, production, etc., in the several counties of the Anthracite coal fields of Pennsylvania, compiled from returns made to this office for the year ending December 31, 1883.

COUNTY.	Number of collieries.	Average number of days in operation during the year.	Total number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.
Carbon,	17	195	4,587	\$1,628,817 77	1,616,991.02
Columbia,	6	182 $\frac{1}{4}$	1,660	564,122 90	549,551.00
Dauphin,	3	268 $\frac{3}{4}$	1,781	612,095 00	668,864.00
Lackawanna,	48	217	14,852	5,899,981 57	5,495,877.00
Luzerne,	115	211	32,011	12,745,672 00	12,415,605.14
Northumberland,	20	223 $\frac{1}{2}$	6,148	2,560,437 18	1,728,670.05
Schuylkill,	100	235	26,069	9,497,126 28	7,603,987.05
Sullivan,*	1	240	200	89,000 00	75,000.00
Susquehanna,†					
	310	221 $\frac{1}{2}$	87,308	33,597,252 70	30,154,546. $\frac{2}{10}$

* Semi-Anthracite.

† Included in Lackawanna.

BITUMINOUS COAL AND COKE.

TABLE showing the number of collieries, number of persons employed, production, etc., in the several counties of the Bituminous coal and coke fields of Pennsylvania, compiled from the returns made to this office for the year ending December 31, 1883.

COUNTY.	Number of collieries.	Average number of days in operation.	Total number of persons employed.	Amount paid in wages during the year.	Number of tons of coal produced during the year.	Number of coke-ovens.	Number of tons of coke produced during the year.
Allegheny,	71	188½	11,255	\$4,821,579 86	4,433,503½	136	13,059
Armstrong,	6	223	240	112,076 16	133,560	84	18,324
Beaver,	7	234	524	130,618 38	115,073	9	1,132
Bedford,	8	193	612	188,514 00	244,190	38	37,644
Blair,	5	179	514	141,252 54	149,585	222	56,787
Bradford,	4	256	678	359,563 27	352,950½		
Butler,	3	177	194	77,082 00	73,038	50	10,000
Cambria,	26	195	1,579	530,149 76	814,294	139	27,890
Cameron,	1	138	202	29,467 80	28,835	20	1,228
Centre,	8	230	754	217,096 36	301,913	65	16,447½
Clarion,	12	181	1,114	344,209 00	333,131	142	26,339
Clearfield,	25	186	4,822	1,447,381 40	2,063,730½	86	14,188
Elk,	5	256	1,358	511,981 00	507,585½		
Fayette,	52	246	5,241	2,248,815 47	2,517,586½	5,881	2,089,428
Huntingdon,	9	197	548	165,633 00	189,580	205	44,702
Jefferson,	9	160	1,352	291,081 00	330,221		
Lawrence,	3	186	162	52,147 00	61,498	82	10,953
Lycoming,	1	260	450	203,029 92	184,556½		
McKean,	3	237	149	89,159 00	84,890		
Mercer,	15	179	1,117	465,493 44	323,425½		
Somerset,	13	201	693	164,701 75	281,257½	33	4,459
Tioga,	8	227	2,513	1,216,429 00	1,186,778	200	41,688
Venango,	3	211	130	41,218 00	26,523		
Washington,	28	188	3,998	955,717 00	938,307	26	12,000
Westmoreland,	46	240	5,255	2,190,228 25	3,049,807	3,190	1,953,904
	381	207½	45,454	\$17,014,624 36	18,729,817½	10,617	3,330,872½

IRON ORE.

TABLE showing the number of iron ore mines, production, etc., in the several counties of Pennsylvania, compiled from returns for the year ending December 31, 1883.

NAME OF OPERATOR BY BLANK NUMBER.	ANALYSIS.										No. of ore mines.	Average number of days in operation in 1883.	Total number of employees.	Total amount paid in wages in 1883.	Number of tons of ore produced in 1883.
	Iron—per ct.	Copper—per ct. of—	Silica—per ct. of—	Alumina—per ct. of—	Sulphur—per ct. of—	Phosphorus—per ct. of—	Manganese—per ct. of—	Magnesia—per ct. of—	Sesqui-oxide—per ct. of—						
<i>Berks county.</i>															
2,266,	1	39.008	. . . . .	23.079	6.005	8.053	52	. . . . .	3 027	55.084	161	12	\$1,835 56	1,250.00
2,267,	1	40	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	237	10	6,410 00	2,714.00
2,268,	1	49	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	186	15	2,848 00	1,592.00
2,269,	1	44	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	206	18	3,600 00	2,575.00
4	4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	197½	55	\$14,693 56	8,131.00
<i>Blair county.</i>															
2,271,	1	50.050	. . . . .	. . . . .	. . . . .	.054	.045	.886	. . . . .	. . . . .	300	85	\$26,924 98	27,000.00
2,272,	3	45	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	203	105	26,832 85	13,919.43
4	4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	251½	190	\$53,757 83	40,919.43
<i>Centre county.</i>															
2,273,	1	55.075	. . . . .	. . . . .	.013	.262	.360	. . . . .	. . . . .	. . . . .	144	23	\$3,400 00	2,458 00
2,274,	1	45.500	14.750	2.579	.044	.191	.294	. . . . .	. . . . .	. . . . .	50	21	1,115 00	1,000.00
2	2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	97	44	\$4,515 00	3,458.00
<i>Cumberland county.</i>															
2,275,	1	51	. . . . .	. . . . .	.017	.015	.015	. . . . .	. . . . .	. . . . .	125	17	\$2,443 75	2,550.00
2,276,	1	50	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	182	25	3,400 00	4,500.00
2	2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	153½	42	\$5,843 75	7,050.00
<i>Lawrence county.</i>															
2,278,	7	37	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	264	40	\$17,235 00	9,636.33
7	7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	264	40	\$17,235 00	9,636.33
<i>Lebanon county.</i>															
2,280,	1	42.005	.810	19.420	. . . . .	2.467	.002	. . . . .	. . . . .	. . . . .	300	150	\$57,390 00	363,143.50
2,281,	1	44.734	18282	.021
2,282,	1	24.413	31.798	5.551	.042
2,283,	1	55.414	.718	11.630855	.001
2,284,	1	57.426	9.840014	.002
2,285,	1	62.211	.080	6.290	3.270	.004
6	6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	300	150	\$57,390 00	363,143.50

IRON ORES—Continued.

NAME OF OPERATOR BY BLANK NUMBER.	No. of ore mines.	ANALYSIS.								Average number of days in operation in 1883.	Total number of employees.	Total amount paid in wages in 1883.	Number of tons of ore produced in 1883.
		Iron—per ct.	Copper—per ct. of—	Silica—per ct. of—	Alumina—per ct. of—	Sulphur—per ct. of—	Phosphorus—per ct. of—	Manganese—per ct. of—	Magnesia—per ct. of—	Sesquioxide—per ct. of—			
<i>Lehigh county.</i>													
2,281,	3	58										\$24,000 00	6,000.00
2,282,	1	40									35	7	1,000.00
2,283,	1										175	4	71.00
2,284,	3	40									100	4	125 00
2,285,	1	60									200	60	8,832 00
2,287,	1	38									60	7	400.00
2,292,	1	43									192	18	2,887 20
2,294,	1										230	22	4,554 00
2,296,	1	40									194	24	1,162 92
	12										181½	177	\$42,960 92
<i>Montgomery county.</i>													
2,300,	1	40									274	10	\$3,576 00
2,301,	1	35									200	16	275 00
	2										237	26	\$3,851 00
<i>Northampton county.</i>													
2,302,	1										109	18	\$5,267 00
	1										109	18	\$5,267 00
<i>Snyder county.</i>													
2,307,	*										300	50	\$18,000 00
2,308,	5										250	28	7,500 00
	5										275	78	\$25,500 00
<i>Centre, Bedford, and Huntingdon counties.</i>													
2,303½,	2	40	18								300	100	\$90,000 00
	5												
	4												
	11										300	100	\$90,000 00
	56										215½	920	\$321,014 06

* Ten drifts.

BLAST FURNACES.

TABLE showing the number of Blast Furnaces, in and out of blast, the production, etc., in the several counties of Pennsylvania, compiled from returns made to this office for the year ending December 31, 1883.

COUNTY.	NUMBER OF STACKS.			Average number of days in operation during the year.	Number of persons employed.	Amount paid in wages during the year.	Number of tons of iron produced during the year.
	In blast.	Out of blast.	Total.				
Adams,		1	1				
Allegheny,	14	2	16	317	2,110	\$1,213,249 00	827,850
Armstrong,	3		3	214	111	45,737 00	15,771
Bedford,	3	2	5	290	266	135,637 00	39,423
Berks,	16	11	27	277	671	260,809 62	110,097
Blair,	8	3	11	224	371	117,048 41	38,008
Bucks,	1		1	365	382	123,000 00	35,151
Cambridge,	5	2	7	365	470	212,200 00	109,000
Clarion,	1	1	2	340	36	19,000 00	6,310
Carbon,	3	1	4	178	110	49,601 94	26,430
Centre,	3	2	5	261	43	33,984 00	18,206
Chester,	3	1	4	253	128	61,759 00	46,900
Clinton,		2	2				
Columbia,	2	1	3	332	165	72,500 00	13,977
Cumberland,	3		3	340	246	68,944 51	14,756
Dauphin,	8	4	12	270	645	253,128 00	101,140
Delaware,	1		1	365	100	41,000 00	20,000
Erie,		1	1				
Fayette,	4	1	5	241	329	129,516 18	37,376
Franklin,	3	2	5	184	111	19,801 38	6,102
Huntingdon,	4	3	7	291	235	115,552 16	21,696
Lackawanna,	4	1	5	326	437	197,694 00	65,512
Lancaster,	11	3	14	329	560	194,364 43	77,331
Lawrence,	4	5	9	287	267	157,114 43	90,281
Lebanon,	8	3	11	280½	460	229,805 47	96,593
Lehigh,	13	15	28	269	1,110	513,657 16	255,911
Lycoming,		2	2				
Mercer,	11	11	22	282	612	327,180 89	184,589
Mifflin,	2	1	3	235½	939	44,582 17	18,167
Montgomery,	7	10	17	253½	354	172,073 44	77,876
Montour,	1	5	6	365	53	19,152 62	14,000
Northampton,	13	6	19	348½	1,153	641,211 44	225,675
Northumberland,		1	1				
Perry,	2		2	239	95	35,540 00	17,835
Philadelphia,	1		1	198	60	18,168 75	7,254
Schuylkill,	4	2	6	235½	199	64,870 90	25,204
Tioga,		1	1				
Union,	2		2	322½	147	54,220 00	7,985
Westmoreland,	1		1	190	57	22,134 75	12,000
York,		1	1				
	169	107	276	282½	13,032	\$5,644,238 65	2,657,406

ROLLING-MILLS.

TABLE showing the number of rolling-mills, number of furnaces, production, etc., in the several counties of Pennsylvania, compiled from returns made to this office for the year ending December 31, 1883.

COUNTY.	Number of establishments.	Number of puddling-furnaces.	Number of heating-furnaces.	Number of trains of rolls.	Number of nail machines.	Average number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Number of tons of iron of all grades manufactured.	Number of kegs (100 pounds) of nails, tacks, and spikes made.
Allegheny,	34	921	388	190	310	271	17,215	\$9 340,868 84	488.410	906,231
Armstrong,	3	45	26	17		232	546	364 710 76	16,564½	
Beaver,	1	8	5	2		235	100	40,000 00	1,350	
Berks,	10	76	35	25		244	1,564	711,562 57	46,934½	205,080
Blair,	4	64	14	14	89	244	583	233,820 98	16 434½	68,434
Bradford,	1	5	1	2	26	270	100	45,000 00	3,000—	5,000
Bucks,	1	12	1	3		296	114	48,000 00	8,600—	
Cambria,*										
Carbon,	1	9	1	2						
Centre,	4	14	6	21	30	186	165	54 884 35	2,755½	39 115
Chester,	7	48	26	16		292	858	422,553 38	41,676	
Crawford,	1	3	1	1			1	385 00		
Columbia,	1	11	3	3		235	100	51,106 87	4,972	
Cumberland,	1	18	3	3		77 296	403	143 791 10	2,023	
Dauphin,	3	43	19	8		103 298	522	354,000 00	20,100	237,280
Delaware,	2	11	15	8	3	222	263	166,857 65	11,678	1,100
Erie,	1	19	4	4		133	225	65,624 33	4,795	
Fayette,	1	8	3	2						
Lackawanna,	2	42	7	7		257	323	13 000 00	10,993	
Laucaster,	5	88	43	24		263	2,210	895,844 37	53,971	10,800
Lawrence,	3	67	17	13	110	200	550	247,541 15	5,664½	120,964
Lebanon,	3	11	8	8		288	263	103,262 24	9,638	
Lehigh,	3	65	22	18		267½	1,019	389,555 47	35,353	11,171
Lycoming,	2	12	3	5		67 250	206	90,000 00	70,390	70,390
Mercer,	4	100	23	14	86	218	1,167	632,483 58	38,701	162,269
Midlin,	1	21	5	5		285	159	6,500 00	6,207	
Montgomery,	11	154	37	37	75	238	3,119	1,429,324 14	132,758½	247,973½
Montour,	3	55	33	11	2	209	975	298,980 18	19,460	538½
Northampton,	3	27	13	5		248	561	143,516 41	17,352	
Northumberland,	3	31	5	5	81	290	250	125,053 63	9,491	64,843
Perry,	1	16	6	4	64	297	340	162,219 46	10,688	123,744
Philadelphia,	9	46	45	36	48	286	1,322	797,683 05	55,161	58,896
Schuylkill,	3	25	15	7		223	670	209,403 19	25,296	
Washington,	1	2	2	3		200	180	80,198 26	2,000	
Westmoreland,	1	12	1	3		200	250	119,500 60	12,409½	
York,	1	12	4	3		250	180	75,000 00	13,000	
	135	2,099	842	526	1,271	251	36,503	\$17,845,130 98	1,197,876	2,333,879

*See Bessemer.

BLOOMARIES.

A STATEMENT showing the production, &c., of Bloomaries in the several counties of the State, compiled from returns made to this office for the year ending December 31, 1883.

COUNTY.	Number of establishments.	Number of refineries.	Number of fires.	Number of hammers,	Average number of days in operation during the year.	Number of persons employed	Amount paid in wages during the year.	Number of tons (2,464) of blooms manufactured.
Berks,	4	4	18	5	253	47	\$12,238 00	2,026 ¹ / ₂
Blair,	1	2	3	1	230	22	9,500 00	538
Centre,	1	1	10	1	182	31	13,620 46	1,270
Chester,	1	..	4	1	211	15	4,627 03	755
Columbia,	1	1	3	2	82	5	986 00	64
Cumberland,	2	2	9	2	207	33	10,251 69	1,228
Dauphin,	2	2	11	2	237	93	18,000 00	2,100
Franklin,	1	1	8	2	224	30	12,955 48	1,347
Huntingdon,	1	1	6	1	200	11	5,396 00	600
Lancaster,	2	2	7	2	117	19	3,098 96	401
Lebanon,	1	..	5	1	208	37	16,439 99	1,578 ¹ / ₂
Perry,	2	2	11	2	250	95	30,000 00	3,098
	19	18	86	22	203	438	\$147,113 61	15,005 ¹ / ₂

CRUCIBLE STEEL.

A STATEMENT showing the production, &c., of Crucible Steel in the several counties of the State, compiled from returns made to this office for the year ending December 31, 1883.

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed	Amount paid in wages during the year.	Amount of product (pounds.)
Allegheny,	10	292	3,275	\$2,034,011 18	127,235,106
Armstrong,	1	250	65	35,000 00	8,000,000
Cameron,	1	300	1,200	590,000 00	92,000,000
Beaver,	1	300	56	35,200 00	
Delaware,	1	304	58	35,108 61	1,259,765
Philadelphia,	5	295	725	448,064 45	28,563,067
	19	290	5,379	\$3,177,384 24	257,057,938

BESSEMER STEEL.

A STATEMENT showing the production, &c., of Bessemer Steel in the several counties of the State, compiled from returns made to this office for the year ending December 31, 1883.

NAME OF WORKS.	Number of converters.	Capacity of converters, in tons.	Number of iron cupalos.	Number of spiegel cupalos.	Number of open-hearth furnaces.	Number of other furnaces.	Number of trains of rolls.	Number of days in operation during the year.	Number of persons employed.	Total amount paid in wages during the year.	PRODUCT.			Total product, gross tons.
											Steel rails, gross tons.	Steel other than rails, gross tons.		
Cambria Iron Company,	2	7	5	4	..	..	2	300	2,050	\$1,202,631 00	129,442	31,292	160,734	
Bethlehem Iron Company,	4	7	8	4	..	..	2	238	1,237	742,200 00	140,649,500	12,478.93	160,735.18	
Edgar Thomson Iron Company,	3	9	4	4	..	10	2	299	1,250	1,051,934 59	173,476,1240	5,566.514	179,042.82	
Lackawanna Iron and Steel Company,	2	7	4	3	..	23	4	274	872	530,142 00	97,956	2,943		
Scranton Steel Company,	2	8	4	3	..	5	2	173	500	300,000 00	27,178			
Pennsylvania Steel Company,	3	7	4	4	2	..	2	235	1,000	700,000 00	126,989	45,000	171,989	
Pittsburgh Bessemer Steel Company,	2	4	3	2	..	..	2	231	524	333,333 00	66,225	3,387	69,612	
Pittsburgh Steel Casting Company,	1	6	2	1	..	1	2	138	69	42,000 00	..	8,000	8,000	
Philadelphia and Reading Coal and Iron Company, . . . . .	..	..	..	..	..	..	..	..	..	..	11,843	..	..
	19	6½	34	24	2	57	16	254½	7,502	\$4,862,290 59	73,758,1740	100,660½	750,113	

THE PRODUCTION OF PIG-IRON, BESSEMER STEEL, AND IRON AND STEEL RAILS IN PENNSYLVANIA IN 1883 AND YEARS IMMEDIATELY PRECEDING.

BY JAMES M. SWANK—*Secretary of the American Iron and Steel Association.*

In Israel Acreliuss' *History of New Sweden*, (the Swedish settlements on the Delaware,) published in 1759, the statement is made that "Pennsylvania, in regard to its iron works, is the most advanced of all the American colonies." How well the Keystone State maintains its prominence of a century and a quarter ago in the manufacture of iron is shown in the following statistics of the production in all the States of leading products of iron and steel in 1883, and in immediately preceding years. Pennsylvania's leading position as a producer of iron and steel will be better understood after a study of these statistics than it has ever been, and it may also be added that its interest in the maintenance of the protective policy, which has built up these industries, will also be better understood. If the iron and steel industries of our great State are to be maintained in their present vigor, the tariff barrier to foreign competition which now exists, and which economic theorists would now remove, must not be weakened at any point.

The Production of Pig-Iron in 1883.

The production of pig-iron in the United States in 1883 was obtained in twenty-four States and one Territory (Washington.) The following table shows the total production of all kinds pig-iron by States in 1883, in the order of their prominence :

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	2,638,891	Georgia,	45,364
Ohio,	679,643	Colorado,	24,680
New York,	331,964	Connecticut,	19,976
Illinois,	237,657	Massachusetts,	10,760
Michigan,	173,185	Indiana,	9,950
Alabama,	172,465	Minnesota,	8,000
Virginia,	152,907	Oregon,	7,000
New Jersey,	138,773	California,	5,327
Tennessee,	133,963	Maine,	4,400
Missouri,	103,296	Texas,	2,381
West Virginia,	88,398	Washington Territory, . . .	2,317
Kentucky,	54,629		
Wisconsin,	51,893	Total,	5,146,972
Maryland,	49,153		

The following table shows in detail the production of bituminous coal and coke pig-iron in the United States in 1883. Fourteen States made this quality of pig-iron in that year :

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	1,184,108	Kentucky,	40,648
Ohio,	639,115	Georgia,	32,319
Illinois,	237,657	Colorado,	24,680
Virginia,	136,028	Wisconsin,	12,544
Alabama,	115,080	Indiana,	9,950
Tennessee,	98,664	Maryland,	1,275
West Virginia,	88,398		
Missouri,	69,184	Total,	2,689,650

The following table shows in detail the production of anthracite pig-iron in the United States in 1883, four States only using this fuel in that year :

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	1,416,468	Maryland,	24,071
New York,	306,284		
New Jersey,	138,773	Total,	1,885,596

The following table shows in detail the production of charcoal pig-iron in the United States in 1883. This is the most widely extended branch of our pig-iron industry, nineteen States and one Territory (Washington) having made pig-iron with this fuel in the year named :

STATES.	Net tons.	STATES.	Net tons.
Michigan,	173,185	Kentucky,	13,981
Alabama,	57,335	Georgia,	13,045
Ohio,	40,528	Massachusetts,	10,760
Wisconsin,	39,349	Minnesota,	8,000
Pennsylvania,	38,315	Oregon,	7,000
Tennessee,	35,299	California,	5,327
Missouri,	34,112	Maine,	4,400
New York,	25,680	Texas,	2,381
Maryland,	23,807	Washington Territory,	2,317
Connecticut,	19,976		
Virginia,	16,879	Total,	571,726

Of the total production of all kinds of pig-iron in the United States in 1883, Pennsylvania produced over 51 per cent. Of the total production of bituminous coal and coke pig-iron, Pennsylvania produced 44 per cent. Of the total production of anthracite pig-iron, Pennsylvania produced 75 per cent. In the production of charcoal pig-iron, Pennsylvania was exceeded by four other States—Michigan, Alabama, Ohio, and Wisconsin.

The following table shows the production of all kinds of pig-iron in Pennsylvania, by district, in the last four years :

DISTRICTS.	NET TONS OF 2,000 POUNDS.			
	1880.	1881.	1882.	1883.
Lehigh Valley,	544,987	560,190	609,338	575,987
Schuylkill Valley,	306,926	309,049	342,701	337,433
Upper Susquehanna,	168,128	125,785	201,367	165,629
Lower Susquehanna,	217,889	218,329	300,240	337,419
Shenango Valley,	215,313	198,968	264,078	290,069
Allegheny County,	300,497	385,453	358,840	592,475
Miscellaneous Coke,	286,007	341,104	322,717	301,564
Charcoal,	43,374	51,908	49,975	38,315
Total,	2,083,121	2,190,786	2,449,256	2,638,891

The production of the three different kinds of pig-iron in Pennsylvania in the last four years has been as follows in net tons :

KIND OF PIG-IRON.	NET TONS OF 2,000 POUNDS.			
	1880.	1881.	1882.	1883.
Anthracite,	1,237,930	1,213,353	1,453,646	1,416,468
Bituminous,	801,817	925,525	945,635	1,184,108
Charcoal,	43,374	51,908	49,975	38,315
Total,	2,083,121	2,190,786	2,449,256	2,638,891

The production of both anthracite and bituminous coal and coke pig-iron increased in 1883 as compared with 1882, but there was a slight decrease in the production of charcoal pig-iron in 1883 as compared with 1882.

The following table gives the production of anthracite, charcoal, and bituminous pig-iron in the United States from 1854 to 1883 :

YEARS.	NET TONS OF 2,000 POUNDS.			
	Anthracite.	Charcoal.	Bituminous	Total.
1854,	339,435	342,298	54,485	736,218
1855,	381,866	339,922	62,390	784,178
1856,	443,113	370,470	69,554	883,137
1857,	390,385	330,321	77,451	798,157
1858,	361,430	285,313	58,351	705,094
1859,	471,745	284,041	84,841	840,627
1860,	519,211	278,331	122,228	919,770
1861,	409,229	195,278	127,037	731,544
1862,	470,315	186,660	130,687	787,662
1863,	577,638	212,005	157,961	947,604
1864,	684,018	241,853	210,125	1,135,996
1865,	479,558	262,342	189,682	931,582

YEARS.	NET TONS OF 2,000 POUNDS.			
	Anthracite.	Charcoal.	Bituminous	Total.
1866,	749,367	332,580	268,396	1,350,343
1867,	798,638	344,341	318,647	1,461,626
1868,	893,000	370,000	340,000	1,603,000
1869,	971,150	392,150	553,341	1,916,641
1870,	930,000	365,000	570,000	1,865,000
1871,	956,608	385,000	570,000	1,911,608
1872,	1,369,812	500,587	984,159	2,854,558
1873,	1,312,754	577,620	977,904	2,868,278
1874,	1,202,144	576,557	910,712	2,689,413
1875,	908,046	410,990	947,545	2,266,581
1876,	794,578	308,649	990,009	2,093,236
1877,	934,797	317,843	1,061,945	2,314,585
1878,	1,092,870	293,399	1,191,092	2,577,361
1879,	1,273,024	358,873	1,438,978	3,070,875
1880,	1,807,651	537,558	1,950,205	4,295,414
1881,	1,734,462	638,838	2,268,264	4,641,564
1882,	2,042,138	697,906	2,438,078	5,178,122
1883,	1,835,596	571,726	2,689,650	5,146,972

The following table gives the number of completed furnaces in the United States at the close of each of the twelve years from 1872 to 1883, allowance being made in each year for furnaces abandoned or torn down to make room for more modern structures :

1872,	612	1878,	692
1873,	657	1879,	697
1874,	693	1880,	701
1875,	713	1881,	716
1876,	712	1882,	687
1877,	716	1883,	683

The following table shows the number of furnaces in blast and out of blast at the close of 1882 and 1883 in the pig-iron districts of Pennsylvania:

DISTRICTS.	DECEMBER 31, 1882.			DECEMBER 31, 1883.		
	In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Lehigh Valley,	44	7	51	29	22	51
Schuylkill Valley,	29	18	47	23	22	45
Upper Susquehanna,	14	11	25	13	12	25
Lower Susquehanna,	26	10	36	23	11	34
Shenango Valley,	12	17	29	12	17	29
Allegheny County,	11	5	16	11	5	16
Miscellaneous Coke,	24	12	36	18	18	36
Charcoal,	25	12	37	13	22	35
Total,	185	92	277	142	129	271

The following table shows the number of furnaces in the United States in and out of blast at the close of 1883, as compared with the close of 1882, separated according to the fuel used :

KIND OF FUEL.	DECEMBER 31, 1882.			DECEMBER 31, 1883.		
	In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Bituminous,	127	83	210	105	116	221
Anthracite,	161	64	225	118	104	222
Charcoal,	129	123	252	84	156	240
Total,	417	270	687	307	376	683

The Production of Iron and Steel Rails in 1883.

The total rail production of the United States in 1883 was as follows, in net tons, compared with the production of 1880, 1881, and 1882 :

KIND OF RAILS.	1880.	1881.	1882.	1883.
Iron rails,	493,762	488,581	227,874	64,954
Bessemer steel rails,	954,460	1,330,302	1,438,155	1,286,554
Open-hearth steel rails,	13,615	25,217	22,765	9,186
Total,	1,461,837	1,844,100	1,688,794	1,360,694

The following table shows the total production of rails of all kinds in 1883, by States, in the order of their prominence :

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	857,818	Wyoming Territory,	6,845
Illinois,	232,005	Tennessee,	2,650
New York,	76,020	Wisconsin,	1,259
Ohio,	62,518	West Virginia,	775
Missouri,	64,142	Alabama,	680
Colorado,	19,688	New Jersey,	60
Indiana,	16,309		
Massachusetts,	12,465	Total,	1,360,694
California,	7,460		

Pennsylvania's share of the total rail production of 1883 was 63 per cent.; Illinois made 17 per cent.; no other State produced 6 per cent.

The production of iron rails in 1883 was distributed as follows :

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	29,963	West Virginia,	775
Indiana,	16,297	Alabama,	680
Wyoming Territory,	6,845	Illinois,	650
California,	2,910	New Jersey,	60
Ohio,	2,243	Missouri,	23
Tennessee,	2,050		
Wisconsin,	1,249	Total,	64,954
Colorado,	1,209		

Pennsylvania produced 46 per cent. of the total production of iron rails in 1883, and Indiana produced 25 per cent.

The production of Bessemer steel rails from 1874 to 1883 was distributed as follows :

YEARS.	NET TONS OF 2,000 POUNDS.			
	Pennsylvania.	Illinois.	Other States.	Total.
1874,	66,902	48,280	29,762	144,944
1875,	112,843	111,129	66,831	290,863
1876,	203,750	133,713	74,998	412,461
1877,	250,531	89,519	92,119	432,169
1878,	308,093	143,785	98,520	550,398
1879,	368,187	197,881	117,896	683,964
1880,	495,716	257,583	201,161	954,460
1881,	688,276	346,272	295,754	1,330,302
1882,	759,524	336,122	342,509	1,438,155
1883,	819,544	231,355	235,655	1,286,554

The above table shows that there was a decrease of nearly 11 per cent. in the production of Bessemer steel rails in the United States in 1883, as compared with the production in 1882, but the production of Pennsylvania increased nearly 8 per cent. in 1883 over the production in 1882. Pennsylvania's share of the total production of Bessemer steel rails in 1883 was over 63 per cent.

The production of iron and steel rails in this country since the beginning of the manufacture of Bessemer steel rails in 1867 has been as follows, in net tons :

YEARS.	NET TONS OF 2,000 POUNDS.				
	Iron rails, all kinds.	Bessemer steel rails.	Open-hearth steel rails.	Total steel rails.	Total iron and steel rails.
1867,	459,558	2,550	. . . . .	2,550	462,108
1868,	499,489	7,225	. . . . .	7,225	506,714
1869,	583,936	9,650	. . . . .	9,650	593,586
1870,	586,000	34,000	. . . . .	34,000	620,000
1871,	737,483	32,250	. . . . .	38,250	775,733
1872,	905,930	94,070	. . . . .	94,070	1,000,000
1873,	761,062	129,015	. . . . .	129,015	890,077
1874,	584,469	144,944	. . . . .	144,944	729,413
1875,	501,649	290,863	. . . . .	290,863	792,512
1876,	467,168	412,461	. . . . .	412,461	879,629
1877,	332,540	432,169	. . . . .	432,169	764,709
1878,	322,890	550,398	9,397	559,795	882,685
1879,	420,160	683,964	9,149	693,113	1,113,273
1880,	493,762	954,460	13,615	968,075	1,461,837
1881,	488,581	1,330,302	25,217	1,355,519	1,844,100
1882,	227,874	1,438,155	22,765	1,460,920	1,688,794
1883,	64,954	1,286,554	9,186	1,295,740	1,360,694

The total rail production of Pennsylvania in the last four years, in net tons, is shown in the following table :

KIND OF RAILS.	1880.	1881.	1882.	1883.
Iron rails,	170,482	193,793	82,764	29,963
Bessemer and open-hearth steel rails, . . .	499,716	697,386	768,144	827,855
Total,	670,198	891,179	850,908	857,818

The Production of Bessemer Steel Ingots in 1883.

The production of Bessemer steel ingots in this country from 1874 to 1883, by States, has been as follows, in net tons :

YEARS.	NET TONS OF 2,000 POUNDS.			
	Pennsylvania.	Illinois.	Other States.	Total.
1874,	85,625	62,492	43,816	191,933
1875,	148,374	136,356	90,787	375,517
1876,	258,452	171,963	95,581	525,996
1877,	328,599	111,299	120,689	560,587
1878,	426,481	179,500	126,245	732,226
1879,	514,165	250,980	163,827	928,972
1880,	643,894	304,614	254,665	1,203,173
1881,	844,501	375,763	318,893	1,539,157
1882,	933,631	397,436	365,383	1,696,450
1883,	1,044,396	273,325	336,906	1,654,627

Pennsylvania produced 63 per cent. of all the Bessemer steel ingots produced in the United States in 1883. As will be seen from the above table, Pennsylvania increased its production of Bessemer steel ingots in 1883 as compared with 1882 nearly 12 per cent., but the production of Illinois in the same period decreased over 31 per cent., and the production of "other States" decreased nearly 8 per cent.

The total production of all kinds of pig-iron in Pennsylvania in 1883 was greater than the total pig-iron production of the whole country in either of the years 1875, 1876, 1877, or 1878. The production of all kinds of steel rails by Pennsylvania in 1883 exceeded the total steel-rail production of the whole country in 1879, and was in excess of the total iron and steel-rail production of the whole country in 1877.

Production of Rolled Iron in 1883.

The following table gives the production by each State in 1883, in the order of its prominence, of all forms of rolled iron, including bar, shaped, bolt, rod, skelp, and hoop iron, and rolled axles; cut nails and spikes; plate and sheet iron, and all sizes of iron rails. Pennsylvania produced over 46 per cent. of the total production of rolled iron in 1883:

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	1,081,163	Tennessee,	22,454
Ohio,	377,962	Connecticut,	18,541
Illinois,	121,702	Missouri,	15,833
New York,	105,644	Rhode Island,	14,405
Massachusetts,	100,418	Michigan,	11,900
West Virginia,	79,894	Wyoming Territory,	11,288
New Jersey,	76,109	Maine,	10,662
Kentucky,	58,263	Alabama,	8,336
Indiana,	55,887	Colorado,	7,844
Wisconsin,	40,195	Nebraska,	3,250
Delaware,	35,384	New Hampshire,	2,158
Virginia,	30,751	District of Columbia,	149
California,	29,732		
Maryland,	28,950	Total,	2,348,874

The production of bar, rod, bolt, skelp, hoop, and shaped iron, and rolled axles in the United States in 1883 is shown in the following table. Pennsylvania's share of the total production of this class of rolled iron in 1883 was nearly 45 per cent.

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	675,226	Rhode Island,	14,405
Ohio,	263,247	Tennessee,	9,786
New York,	104,229	Missouri,	9,642
Illinois,	94,747	Maine,	8,947
New Jersey,	56,839	Michigan,	8,080
Massachusetts,	47,915	Alabama,	6,656
Wisconsin,	38,946	West Virginia,	4,964
Kentucky,	36,531	Wyoming Territory,	4,443
Delaware,	22,755	Colorado,	3,486
Virginia,	22,687	New Hampshire,	2,132
California,	20,747	District of Columbia,	141
Indiana,	18,921		
Connecticut,	18,491	Total,	1,511,422
Maryland,	17,459		

The production of cut nails and spikes from nail-plate in the United States in 1883 was as follows, in kegs of one hundred pounds. Pennsylvania produced over 31 per cent. of the total production of cut nails and spikes in the United States in 1883.

STATES.	Kegs of 100 pounds.	STATES.	Kegs of 100 pounds.
Pennsylvania,	2,430,552	Kentucky,	144,686
West Virginia,	1,327,484	California,	111,500
Ohio,	1,249,700	Nebraska,	65,000
Massachusetts,	677,540	Colorado,	62,969
Illinois,	526,108	Alabama,	20,000
Indiana,	413,380	New York,	14,768
New Jersey,	338,107	Maine,	7,306
Tennessee,	212,358		
Virginia,	161,279	Total,	7,762,737

The following table gives the production of plate and sheet-iron in the United States in 1883. Pennsylvania is the leading plate and sheet-iron making State in this country; producing in 1883 over 66 per cent. of the total quantity produced.

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania,	254,446	New Jersey,	2,305
Ohio,	49,987	Maine,	1,350
Massachusetts,	18,626	New York,	677
Kentucky,	14,498	California,	500
Delaware,	12,629	Connecticut,	50
Maryland,	11,491	New Hampshire,	26
West Virginia,	7,781	District of Columbia,	8
Missouri,	6,168		
Michigan,	3,820	Total,	384,362

The total production of each class of rolled iron by Pennsylvania in 1883 is shown in the following table, compared with the total production of the whole country in the same year :

ARTICLES.	PRODUCTION IN 1883. TONS OF 2,000 POUNDS.	
	Pennsylvania.	United States.
Bar, rod, bolt, etc.,	675,226	1,511,422
Plate and sheet-iron,	254,446	384,362
Cut nails,	121,528	388,136
Iron rails,	29,963	64,954
Total,	1,081,163	2,348,874

The Iron and Steel Production of Allegheny County, Pennsylvania.

The following table gives the production of iron and steel in Pittsburgh and the remainder of Allegheny county, Pennsylvania, from 1874 to 1883, in net tons. Allegheny county is well known to be the leading iron and steel producing county in the United States.

YEARS.	Number of iron rolling-mills.	Product of iron rails, bar, angle, bolt, rod, and hoop, tons.	Product of sheet and plate, except nail plates, tons.	Product of nails, kegs of 100 pounds.	Total rolled iron, including nails, net tons.
1874,	31	194,114	52,361	562,995	274,625
1875,	31	171,178	45,773	442,359	239,069
1876,	31	189,511	31,488	538,874	247,943
1877,	31	208,342	30,254	597,806	268,486
1878,	31	226,687	33,445	444,013	282,333
1879,	32	286,882	52,265	294,942	353,894
1880,	30	287,253	80,899	419,093	389,107
1881,	30	403,119	75,767	485,916	505,182
1882,	31	336,628	71,038	459,228	430,627
1883,	32	367,106	73,850	627,896	472,351

YEARS.	Number of blast furnaces.	Make of pig-iron, net tons.	Number of steel works.*	Net tons crucible steel ingots.	Net tons all other steel, including Bessemer ingots.	Total make of steel, net tons.
1874,	11	143,660	11	17,915	6,000	23,915
1875,	11	131,856	14	22,942	15,498	38,440
1876,	11	128,555	14	25,009	54,467	79,476
1877,	12	141,749	14	24,747	82,401	107,148
1878,	12	217,299	14	27,866	106,948	134,814
1879,	13	267,315	18	40,142	130,781	170,923
1880,	15	300,497	17	52,136	169,819	221,955
1881,	15	385,453	17	61,256	247,345	308,601
1882,	16	358,840	18	59,596	258,501	318,097
1883,	16	592,475	20	59,128	346,402	405,530

* Bessemer steel included ; five of these works are also iron rolling-mills.

IRON FOUNDRIES.

TABLE showing the number of Iron Foundries, the production, etc., in the several counties of Pennsylvania, compiled from returns made to the Bureau, for the year ending December 31, 1883.

COUNTY.	Number of establishments.	Average number of days in operation during the year.	Number of persons employed.	Number and capacity of cupolas, in tons.	Number of tons of iron castings.	Number of pounds of brass castings.	Total amount paid in wages during the year.
Adams,	1	300	5				\$1,500 00
Allegheny,	34	280	1,876	38-13	40,253½	498,658	1,057,371 35
Armstrong,	4	158	11	4-1½	322	5,100	3,368 00
Beaver,	1	250	30		300		16,500 00
Bedford,	4	249	27	4-2½	141		7,440 00
Berks,	9	289	670	17-6½	13,723	951	299,562 07
Blair,	5	201	81	6-5	1,140	6,237	31,986 00
Bradford,	6	259	56	6-2½	520	2,151	23,100 00
Bucks,	2	277	87	2-8½	1,854		39,210 70
Butler,	3	243	10	3-1½	236		1,500 00
Cambria,	3	260	12	3-1½	280		4,539 25
Cameron,	1	300	3	1-1	10	100	600 00
Carbon,	3	280	130	4-6	2,210		53,613 33
Centre,	2	200	13	2-1½	180		5,719 00
Chester,	3	303	75	3-4½	916	13,000	33,075 00
Clarion,	4	205	15	4-1½	180	1,000	3,218 00
Clearfield,	6	197	54	6-3½	285½	700	24,500 00
Clinton,	7	204	179	8-4	2,255	5,600	123,924 94
Columbia,	5	229	50	6-1½	1,003½	4,000	17,211 00
Crawford,	4	278	66	4-3½	1,423	6,042	31,387 00
Cumberland,	4	260	181	5-3½	1,355	20	53,500 00
Dauphin,	4	280	29	3-2½	460		10,360 00
Delaware,	1	310	246	2-15	1,560	29,200	110,000 00
Erie,	7	264	490	8-14	18,163	2,500	258,374 63
Fayette,	4	194	35	10-2	425		9,387 88
Franklin,	3	183	30	3-2	333		10,377 00
Greene,	2	275	10	2-1	50		3,900 00
Huntingdon,	5	206	14	5-1½	250	500	8,400 00
Indiana,	7	266	26	7-1½	484		8,600 00
Jefferson,	1	72	1	1-½	6		72 00
Juniata,	6	112	18	6-¾	174		1,540 00
Lackawanna,	9	239	252	11-4	3,100	66,234	111,835 98
Lancaster,	8	251	291	8-5½	2,370		115,329 36
Lawrence,	5	275	66	7-3	1,260	18,000	30,135 25
Lebanon,	3	270	67	4-6½	752		20,516 85
Lehigh,	8	269	1,694	17-8	15,405		202,413 69
Luzerne,	5	233	185	6-3½	2,632	1,965	52,705 00
Lycoming,	2	283	53	5-3½	795	5,500	26,576 43
McKean,	2	282	10	2-2½	170	4,500	4,700 00
Mercer,	5	257	33	6-3	503½	6,800	6,875 00
Mifflin,	2	267	5	2-1½	140		1,635 00
Monroe,	5	257	33	6-3	503½	6,800	6,875 00
Montgomery,	10	271	347	12-7	5,790	34,518	155,948 95
Montour,	3	265	87	3-4	1,220	2,800	33,059 67
Northampton,	9	219	79	10-2	1,128½	6,800	33,356 92
Northumberland,	8	181	74	10-1	713	16,500	31,580 22
Perry,	6	183	19	7-2½	161½		3,355 50
Philadelphia,	56	300	3,681	65-7	44,954½	1,985,672	2,029,802 11
Potter,	2	63	23	2-3	50	20	300 00
Schuylkill,	6	206	172	8-3½	827½	15,871	54,931 57
Snyder,	5	85	9	5-½	61		4,155 00
Somerset,	2	100	8	2-1	20		225 00
Susquehanna,	3	108	14	3-1	95	500	5,725 00
Tioga,	5	237	35	5-2½	543	3,021	16,218 75
Union,	1	300	5	1-3½	35		1,400 00
Venango,	2	300	14	2-1½	150	1,000	4,630 00
Warren,	1	100	2	1-4	50		1,000 00
Washington,	3	269	28	3-3½	184		13,138 00
Wayne,	4	294	27	4-1½	70		6,800 00
Westmoreland,	5	290	42	5-4½	750	4,000	23,250 00
Wyoming,	4	221	18	4-2	305	500	8,800 00
York,	3	269	251	7-9½	5,132	10,000	90,220 00
	346	235	12,153	407-7½	279,873	2,766,860	5,350,381 40

GLASS.

TABLE showing the number of Glass Works, the production, etc., in the several counties of Pennsylvania, compiled from returns to the Bureau, for the year ended December 31, 1883.

COUNTY.	Number of furnaces.	Number of pots.	Average number of days in operation.	Number of persons employed.	Total amount paid in wages during the year.	Number of boxes (50 feet) manufactured.	Value of product.
<i>Window.</i>							
Allegheny,	19	180	169	1,031	\$537,649 09	387,172	
Crawford,	1	8	300	58	42 000 00	30 000	
Fayette,	4	40	220	284	218,217 59	95,694	
Lawrence,	2	20	155	114	69,995 24	51,636	
Montgomery,	1	10	300	70	45,000 00	35,000	
Tioga,	1	8	234	50	30,000 00	26,100	
	28	266	230	1,607	\$942,861 92	625,602	
<i>Flint and Green.</i>							
Allegheny,	44	487	172	4,651	\$1,933,765 30	. . . . .	\$3,666,564 92
Beaver,	2	22	262	199	92,190 12	. . . . .	217,200 00
Centre,	1	10	300	61	45 588 07	. . . . .	85,266 97
Monroe,	1	5	208	90	40,000 00	. . . . .	70,000 00
Philadelphia,	9	82	242	1,216	493,929 40	. . . . .	1,334 815 69
Wayne,	5	34	259	443	187,095 81	. . . . .	379,994 87
	62	640	240	6,660	\$2,392,568 70	. . . . .	\$5,753,842 45

PETROLEUM PRODUCERS.

TABLE showing the number of Petroleum Producers, production, etc., compiled from returns made to the Bureau, for the year ending December 31, 1883.

NAME OF OPERATOR BY NUMBER ON BLANK.	No. of years in oil business.	No. of producing wells operated in that time.	No. of producing wells operated at present.	No. of pumps employed.	No. of drillers and tool-dressers em- ployed	Ave'gedaily wages paid to pumps.	Ave'gedaily wages paid drillers.	Average cost to sink a well.	Average cost to produce one bar- rel of oil.	Average cost per barrel for pipe- age.	Average selling price per barrel for the year 1883.
2325,	10	80	50	11	...	\$1 50	...	...	\$1 00	20	\$1 07½
2328,	9	12	7	2	...	1 50	...	\$2, 500	40	30	1 07½
2330,	15	34	10	4	...	2 25	...	2,500	...	25	90
2331,	4	100	80	13	12	...	...	3,000	1 01	20	1 07½
2332,	18	...	...	...	...	...	...	4,500	...	20	1 05½
2333,	19	...	35	8	...	2 00	...	1,000	...	10	...
2309,	22	122	35	...	...	1 62	...	3,000	1 00	20	1 05½
2312,	11	737	663	150	8	1 90	\$3 50	2,500	1 00	20	1 06
2320,	16	90	54	20	...	1 50	...	3,500	75	20	1 06½
2335,	7	27	13	3	...	2 25	...	3,500	70	20	...
2336,	7	53	53	20	...	1 50	...	3,000	...	20	...
2337,	18	...	...	...	...	...	...	3,000	...	20	...
2339,	24	550	50	15	...	2 00	...	2,000	75	20	...
2341,	6	10	5	2	6	2 00	3 50	3,500	1 00	05	90
2342,	6	50	12	5	...	1 50	...	3,500	...	20	1 06
2343,	7	175	63	20	...	...	...	3,500	...	20	1 06
2345,	11	30	...	...	...	...	...	3,000	60	20	...
2346,	19	400	315	40	16	2 00	2 75	2,500	75	20	1 06
2348,	5	43	9	4	3	2 00	3 00	2,750	70	20	80
2350,	7	200	199	55	...	1 50	...	3,500	41	20	1 05
2355,	6	15	9	2	...	2 00	...	4,000	...	20	1 00
2357,	6	62	11	2	...	2 00	...	3,000	...	20	1 05½
2361,	8	...	421	100	...	2 00	...	3,000	...	20	...
2362,	5	500	430	100	...	2 00	...	...	85	20	1 07
2366,	14	...	100	15	...	1 70	...	2,500	...	20	...
2368,	9	54	32	4	4	2 00	3 25	...	92	20	1 08½
2369,	10	45	23	4	...	...	1 62	3,000	1 00	...	...
2370,	21	406	29	9	...	2 00	...	3,000	1 00	20	1 07
2371,	6	38	6	4	...	...	...	2,800	80	20	1 07½
2372,	19	3	3	1	...	1 00	...	4,000	40	20	1 00
2374,	5	165	160	35	4	...	3 75	3,000	...	...	1 06
2375,	20	...	60	10	...	2 50	...	2,000	1 00	20	1 00
2377,	18	20	...	...	...	...	...	3,500	...	30	...
2379,	7	6	3	1	...	1 33	...	3 000	50	20	1 06
2385,	20	700	225	60	20	2 00	3 50	2,500	...	20	1 09
2394,	8	115	50	11	14	...	...	3,300	91	...	97
2389,	4	11	11	2	...	2 40	...	2,500	55	...	1 05
2390,	19	...	31	5	4	2 00	3 50	2,000	...	20	1 05
2391,	6	12	12	2	...	2 00	...	3,200	...	...	...
2392,	5	6	3	1	...	50	...	2,300	83	...	1 05
2394,	18	...	125	25	...	2 00	...	3,000	80	...	1 00
2398,	9	...	31	7	...	2 25	...	2,800	50	20	1 06
2405,	7	27	3	1	...	1 50	...	2,666	...	20	1 00
2410,	10	84	54	9	...	...	...	3,000	1 00	20	1 06
2411,	5	42	7	...	...	1 67	...	...	...	20	1 06
2413,	8	140	129	55	...	...	...	2,250	25	20	1 10½
2416,	12	66	16	2	4	2 00	3 60	2,500	80	20	1 00
2425,	7	33	10	2	...	...	...	3,000	...	20	1 00
2427,	6	37	24	5	...	2 00	...	3,000	...	20	1 00
2433,	24	250	76	22	...	...	...	3,700	1 00	25	1 09
2434,	13	27	4	1	...	...	...	...	...	25	3 65*
2435,	25	...	100	...	...	...	...	1,500	...	25	3 75*
2436,	20	50	24	4	...	1 68	...	...	...	20	1 00
2439,	21	...	15	3	...	1 81	...	...	...	20	1 15
2442,	14	200	78	21	...	1 75	...	2,000	...	20	1 07
2443,	14	300	48	20	...	...	...	2,500	95	20	1 14
2445,	5	101	93	8	4	2 00	3 00	3,000	...	27	97
2447,	16	63	45	6	...	1 50	...	...	40	20	1 04
2449,	20	100	56	27	4	1 50	3 00	...	...	20	1 07
2451,	18	53	3	2	...	1 50	...	2,000	1 07	23½	1 07½
2451, C,	17	18	7	2	...	1 50	...	2,500	50	20	1 08
2451, B,	15	12	6	2	...	2 50	...	3,000	1 00	20	1 04½
2451, D,	15	...	...	...	...	...	...	2,000	...	20	...
2451, E,	15	20	2	4	...	...	...	2,500	...	20	1 05
2451, F,	19	50	7	3	...	2 00	...	2 100	70	20	1 07½
2451, H,	24	176	97	51	...	...	...	1,200	...	20	1 12½
2451, J,	13	100	89	6	...	1 70	...	2,500	...	20	...
2451, G,	19	55	31	7	6	1 50	3 00	...	...	...	...
2426,	7	15	5	1	...	1 50	...	3,500	80	...	95
2412,	8	65	34	5	...	2 00	...	2,500	40	20	1 05½

* Lubricating oil.

PETROLEUM PRODUCERS.

	Number of years in business.	Condition of oil producers com- pared with what it was in 1872.	Remedies suggested by oil producers for correction of existing evils in the oil trade.
2309, . .	22	Bankrupt.	
2320, . .	16	.....	A limit of the production to the demands of trade.
2328, . .	9	Better.	
2333, . .	19	Improved, . . .	A law to fine and confine for life all persons now speculating in oil.
2332, . .	18	Worse.	
2331, . .	4	Worse.	
2330, . .	15	Worse.	
2335, . .	7	Do not know, . .	The methods of the business are now better than ever before.
2336, . .	7	Much poorer, . .	They all speculate too much.
2337, . .	18	Much poorer, . .	Increase of consumption.
2339, . .	24	Poor.	
2341, . .	6	Very poor, . . .	Think all in the business should make an assignment.
2342, . .	6	Very poor, . . .	Suppression of wild-catting and speculation.
2343, . .	7	Very poor, . . .	Suppression of wild-catting and speculation.
2345, . .	11	Impoverished, . .	Anti-discrimination measures against transportation companies.
2346, . .	19	Favorable, . . .	Enforcement of existing laws. No rebates or drawbacks to rail- roads, pipe lines, companies, or individuals.
2348, . .	5	Worse,	The Standard Oil Company is a merciless incubus upon the business. For fifteen years it has dictated the price of crude and refined. Kill or crush it.
2350, . .	7	.....	Less speculation.
2351, . .	6	Worse,	Destroying of the monopolies.
2357, . .	6	Better,	Decrease of production and increase of consumption.
2361, . .	8	.....	Free and unobstructed transportation of oil. No discrimination in freight rates, and a law making pipe line companies common carriers.
2368, . .	9	Do not know, . .	A reduction in storage and pipeage charges, and competition in the refining and transportation interests which are and have been monopolized by the Standard.
2370, . .	21	Poorer.	It is working out its own salvation. Too late to legislate on the sub- ject.
2372, . .	19	Good,	Stop the drill.
2373, . .	20	Better.	The State should encourage Congress to pass a bill to regulate inter- State commerce, preserving free competition, and prohibiting discrimination of any kind.
2377, . .	18	.....	Equal rights and same protection for all men engaged in the busi- ness.
2379, . .	7	The same,	The enforcement of the "common carrier" laws.
2383, . .	20	Worse,	
2384, . .	8	Better,	Put down less wells.
2389, . .	4	Better.	Hire E. G. Patterson to damn the Standard.
2390, . .	19	The same,	Think they cannot be remedied.
2394, . .	18	The same,	Do less drilling and curtail production.
2405, . .	7	.....	Give every man equal rights as regards transportation on railroads at uniform rates.
2410, . .	10	Better,	There must be less wells drilled.
2411, . .	5	Worse,	Curtail the Standard Oil Company's influence as a monopolist.
2413, . .	8	Better,	Higher prices for the crude product.
2416, . .	12	Better,	Pass an anti-discrimination bill, one that cannot be misunderstood, giving all an equal share in the transportation of oil.
2417, . .	4	.....	Pass an anti-discrimination bill giving individuals an equal right with corporations and no monopolies.
2425, . .	7	Better,	Put down monopolies.
2427, . .	6	Improvement,	That no rebates should be granted any person or company for trans- portation on account of large shipments or for any other cause.
2433, . .	24	The same.	Drill fewer wells. The pipe lines now absorb all the profits.
2434, . .	13	Worse,	Less drilling and production.
2435, . .	25	Worse,	Anti-discrimination by railroad companies.
2436, . .	20	Worse,	Free competition and no discrimination in freight rates.
2439, . .	21	.....	Better prices and d — n the Standard.
2442, . .	14	Much worse, . .	Free pipe laws and no discrimination by railroad companies.
2443, . .	14	Worse,	
2447, . .	16	Worse,	
2449, . .	20	Poorer,	
2451, C,	17	Very poor.	
2451, . .	18	Wretched, . . .	More <i>Pattisons</i> like the present Governor and less corporation law- yers at Harrisburg. Appoint a committee of <i>loyal producers</i> to investigate.
2451, B,	15	Worse,	Competition in buying.
2451, D,	15	Worse,	Democratic administration.
2451, E,	15	Better fixed, . . .	Not to drive the drilling; find a better market for the oil and pre- vent the Standard Oil Company from squeezing the producer.
2451, F,	19	Same.	Prevent combinations between railroad and pipe line companies.
2451, J,	13	Very much worse,	Prevent combinations between different refineries.
2426, . .	7	Not good,	Destroy the monopoly of the refining corporations.
2412, . .	8	50 per cent. worse,	A reduction of present carrying or storage charges by pipe lines to an equivalent of its actual cost.

PETROLEUM REFINERS.

TABLE showing the number of Petroleum Refineries, the production, etc., compiled from returns made to the Bureau for the year ending December 31, 1883.

NAME OF REFINER BY NUMBER ON BLANK.	Number of stills in operation.	Refining capacity per day in barrels of 42 gallons.	Percentage of refined oil from 42 gallons crude.	Percentage of paraffine.	Percentage of benzine.	Percentage of other products.	Average number of barrels of oil refined per day.	Number of barrels (wood) made in 1883.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages in 1883.	Average cost to produce one barrel of refined oil.	Number of barrels benzine made in 1883.	Number of barrels paraffine made in 1883.	Number of barrels of other products made from crude oil in 1883.	Number in 1883.	REMARKS.
2454,	8	1,000	78	..	8	5	150	..	60	10	\$6,000 00	\$ 50	3,600	..	2,237	45,000	Cost includes barrel.
2455,	2	100	76	2	15	2	60	..	240	6	2,500 00	2 82	2,130	284	284	14,200	Lubricating oil—cost includes barrel.
2462,	4	328	78	..	10	7	108	..	300	10	7,650 00	65	3,255	..	2,278	32,550	Cost includes barrel.
2463,	4	733	78	..	12	4	500	..	300	25	25,881 00	..	18,000	..	600	150,000	Oil made from the refuse of other refineries.
2465,	2	100	40	..	15	35	47	..	275	8	5,400 00	50	1,950	..	4,550	13,000	Cost includes barrel.
2472,	2	80	70	..	10	10	30	..	200	3	1,800 00	4 50	600	600	1,800	6,000	Cost includes barrel.
2474,	1	40	75	7	10	8	11	..	208	2	832 00	2 51	160	229	183	2,293	Cost includes barrel.
2482,	5	500	40	17	20	..	200	36,500	350	43	31,955 00	42	8,044	9,463	9,463	47,318	Cost includes barrel.
2483,	20	285½	..	..	..	..	170	53,600	300	22	17,771 48	2 10	..	..	..	37,000	Cost includes barrel.
2495,	4	200	75	10	7	..	70	..	225	15	11,000 00	25	1,400	2,000	1,600	20,000	Cost includes barrel.
2496,	13	3,200	75	..	8	5	1,621	..	305	263	134,290 70	29	16,800	41,410	47,329	591,572	Cost includes barrel.
2502,	6	1,000	78	..	14	5	780	..	300	20	17,500 00	3 36	549	..	6,000	120,000	Cost includes barrel.
2506,	3	100	45	..	10	45	18	..	300	1	350 00	..	110	..	2,490	5,490	Cost includes barrel.
2511,	1	50	45	..	10	45	10	..	110	2	395 00	..	..	..	495	1,100	Cost includes barrel.
2516,	3	60	70	..	12	13	36	10,878	300	14	6,379 18	1 42	1,337	..	1,423	11,064	Cost includes barrel.
2518,	12	2,000	71	19	10	..	1,183	256,080	220	175	117,971 25	..	40,885	23,784	512	431,843	Cost includes barrel.
2477,	21	1,917	66	1	24	9	1,004	48,973	313	182	81,377 71	..	76,173	4,207	28,076	314,370	Cost includes barrel.
2463,	12	8,000	82	..	10	8	824	100,000	240	250	111,870 00	..	26,046	..	21,457	247,263	Cost includes barrel.
2453,	9	600	75	2	10	13	125	15,253	208	20	12,000 00	3 64	5,231	..	18,082	37,500	Cost includes barrel.
2471,	6	500	80	..	7	20	113	5,851	288	31	16,271 65	..	94,211.90	98,725.44	94,473.26	34,088	Manufacturing paraffine oil and wax.
2494,	55	8,857	70	10	10	10	3,732	352,157	313	1,276	473,954 83	..	..	70,424	..	1,168,156.80	..
2497, . . . .	..	..	..	..	..	..	..	..	290	18	11,225 86	..	..	..	..	..	..
2514,	2	100	75	..	13	7	75	..	300	7	5,300 00	35	..	..	..	23,000	..
	195	31,750½	68½	8½	10	14	10,867	879,292	258	2,403	\$1,099,465 67	..	348,810.90	251,126.44	243,300.26	3,357,807.80	..

PETROLEUM—PIPE LINES.

TABLE showing the number of Petroleum—Pipe Lines, the production, etc., compiled from returns made to the Bureau for the year ending December 31, 1883.

NAME OF COMPANY.	Number of miles of pipe.	Number of iron tanks.	Number of wooden tanks.	Number of boilers.	Number of pumps.	Number of men employed.	Average daily wages.	Number of barrels of oil received into lines in 1883.	Number of barrels delivered from the lines in 1883.	Number of barrels of oil in stock on December 31, 1883.	Average capacity in barrels	
											of iron tanks.	of wooden tanks.
Tide Water Pipe Company, Limited,	646.97	91	23	40	111	170	\$2 27	3,146,768.69	3,160,907.34	2,359,626.20		
United Pipe Line Company,	2,363	1,400	138	220	1,024	688	2 51	21,075,152.85	18,575,347.11	35,253,292.49		
	3,039	1,491	171	260	1,135	858	\$2 34½	24,221,921.54	21,736,254.45	37,612,908.69	20,000	900

PETROLEUM.

A general history of the petroleum oil trade of this State cannot be given in this volume of our reports; the business is large and diversified, so much so, indeed, that with the limited time and means at our disposal it was deemed impossible to obtain full and complete statistics. As early in the year as possible, we prepared blanks suited to the producing and refining interests. To the producers one hundred and fifty-four blanks were mailed, out of which number we received in reply one hundred and eleven. Many of these replies were either indefinite, or else to the effect that the party addressed had abandoned the business.

Complaints having been made by the producers and small refiners regarding the condition of the oil trade, the blanks were prepared in such a form as would enable them to state the condition of trade, the causes, and the remedy.

As many of the producers advanced the theory of over-production being the cause of low prices, we had a table of prices and production, from 1859 to 1884, prepared, and which accompanies this report. To this was added a valuable table on the exports of petroleum and its products, prepared from the reports of Mr. Nimmo, and the geological reports of this State. To the refiners were mailed sixty-eight blanks, fifty-five of which were returned. It is not pretended that our report on the refining industry is complete, but we trust that such as it is it will, in a great measure, assist in determining the amount of oil refined in the State, together with the average cost of refining a barrel of crude petroleum, and the percentage of refined oil and other products derived therefrom.

In some cases, in order to determine the average cost to refine, it may be necessary to add or subtract the price of the crude petroleum together with the price of the wooden barrel, the average of which latter is \$1 25. The reports from the pipe line companies are very nearly complete. Of the two thousand three hundred and ninety-three miles of line pipe reported by the United Line Company, one thousand seven hundred and ten miles are of two-inch diameter, three hundred and seventy-one are of three-inch, one hundred and twenty are of four and five-inch, and one hundred and ninety-two miles are of six-inch. Tide-Water Pipe Company reports six hundred and forty-six ninety-seven one hundredth miles of line pipe, but does not furnish the dimensions in diameter. These two-inch lines of pipe are connected with the oil tanks of the producer, and enables him to transport his oil into the large receiving tanks of the pipe line companies. For this he is charged twenty cents per barrel, besides $2\frac{1}{2}$ per cent. for leakage and evaporation. Whether this system of transportation is of a more pecuniary value to the producer than the old system of hauling by means of wagons, is not so certain. Before the general introduction of the pipe line system, the average charge per barrel for hauling oil in wagons was fifty cents; thus it would appear at first glance that the producer of to-day was having an advantage owing to the pipe line system of transportation of

thirty cents per barrel. But if we view the matter in the ratio of cost to selling price, it will be seen that the average price paid under the pipe line system for transporting oil has been about one fourth the selling price of the oil as against one eighth the selling price when hauled away in wagons.

The present pipe line system is complete in nearly all its details, with its vast machinery of pipes, pumps, boilers, and tanks, with an army of linemen and clerks, with its management divided among transporters and refiners, it has been enabled to hold complete control of the entire production.

The labor product for one day for the United Line Pipe Company has been estimated as follows: Oil handled, 60,000 barrels; iron tanks built and repaired, 90 tons; number of tin vessels manufactured, capacity five gallons each, 100,000; together with 25,000 oak barrels manufactured, requiring the use of 150 tons of hoop-iron. The railroad, once an important factor in the transportation of oil, has been superseded by the introduction of the six-inch conduits, which convey the greater portion of the oil to the sea-board, and in this connection it may be remarked that of all the vast stores of oil which this State produces, three fourths of it is taken to New York, Cleveland, and Baltimore, there to give employment to thousands of workmen and to enrich the coffers of three several States, two of which never aided in its development. One needs but to examine the statistics of exports to see that petroleum and its products rank second in the list, King Cotton being first. The same table will show that the exports from the port of Philadelphia of petroleum and its products are very insignificant. At some future time we may be able to give more full and important data bearing upon this question, and to that end we hope to have the cordial support of all those interested, especially since now they may know for certain that their private affairs are not made public in this report.

STATEMENT made by the United Pipe Lines February 9, 1884, showing gross stocks, sediment and surplus, net stocks, outstanding acceptances, and credit balances at the close of each month; also receipts from all sources and total deliveries for each month, beginning with April, 1877.

	Gross stocks.	Sediment and surplus.	Net stocks.	Outstanding acceptances.	Credit balances.	Receipts from all sources.	Total deliveries.
1877—April, .	\$1,895,153 71	\$77,386 70	\$1,817,767 01	\$449 640 14	\$1,368,126 87	\$200,570 81	\$125,797 90
May, .	1,762,602 64	75,364 87	1,687 237 77	683,663 71	1,003,574 06	493,200 58	619,612 26
June, .	1,569,367 68	81,255 42	1,488,112 26	661,786 57	826 325 69	538 906 95	737,609 77
July, .	1,482 433 51	81,741 50	1,400,692 01	667,166 36	733 525 65	615 145 46	699,476 18
Aug., .	1,489 052 53	81,144 63	1,407 907 90	643,281 46	764 626 44	673 403 04	666,144 28
Sept., .	1,339 032 27	67,163 68	1,271 868 59	552,676 26	719 192 33	624 225 37	760,745 57
Oct., .	1,434,728 78	46,771 99	1,387,956 79	673,850 05	714 106 74	687,694 59	570,692 71
Nov., .	1,691,399 52	39,418 00	1,651,981 52	657,591 36	994,390 16	913 644 16	649 242 70
Dec., .	2,330,415 36	68,729 63	2,761,685 73	754,338 25	2,007,347 48	1,656,150 37	506 322 99
1878—Jan., .	3 124,641 15	72 453 43	3,052,187 72	864 711 41	2,187,476 31	972,681 18	715 149 73
Feb., .	3,439,526 98	82 452 66	3 357,074 32	1,404,292 13	1,952,782 19	1,030,688 44	720,478 14
March, .	3,940,000 65	92,963 06	3,847,037 59	1,487,439 50	2,359,598 09	1,196,251 26	701 681 27
April, .	4,335,274 84	133,934 76	4,201,340 08	1,615,791 19	2,585,548 89	1,137,359 40	778,050 53
May, .	4,609,681 45	150,117 76	4 459,563 69	2,065,333 31	2,394,230 38	1,104 352 40	843,081 33
June, .	4,719,699 25	181,800 03	4,537,899 22	1,950,420 81	2,587,478 41	1,092 604 02	1,004,474 55
July, .	4,835,851 72	229 080 78	4,656,770 94	2,078,469 56	2,578,301 33	1,258 648 45	1,108,074 33
Aug., .	4,571,658 59	217,035 19	4 354,573 40	2,064,590 76	2,289,982 64	1,195,268 67	1,496,009 04
Sept., .	4,410 061 84	225,088 86	4 184,972 98	1,705,853 95	2,479,119 03	1,182,118 57	1,318,265 33
Oct., .	4,072 627 43	234,050 89	3,838 576 54	1,517,484 27	2,321,092 27	1,271,174 73	1,564,984 43
Nov., .	4,083,972 42	216,655 30	3 867,317 12	1,784 443 35	2,082,873 77	1,159 623 71	1,129,047 02
Dec., .	4,098,200 92	201 470 30	3 896,730 62	1,741,311 07	2 155,419 55	972 338 83	924,035 93
1879—Jan., .	4,759 031 41	132,707 80	4,576,323 61	2 153,763 83	2,422,559 78	1,231 237 19	546,271 74
Feb., .	5,157,646 15	171,689 80	4,985,956 35	2,346,238 22	2,639,718 13	1,055 377 95	633,828 71
March, .	5,503,768 71	190,797 91	5,312,970 80	2 484,881 83	2,828,088 97	1,363,512 17	1,029,029 70
April, .	5,885,675 24	211,957 06	5 673,718 18	2,644 301 36	3,029,416 82	1,379,349 76	1,015,482 04
May, .	6,180,843 53	315 992 98	5,864,850 55	2,522,486 36	3 342,364 19	1,488,514 31	1,228 043 27
June, .	6,426 802 45	334,457 29	6,092,345 16	2,959,921 12	3 132,424 04	1,437,250 90	1,204 757 54
July, .	6,419,699 08	223,295 32	6,096,403 76	3,323 575 29	2,772 823 47	1,472 651 01	1,465,518 05
Aug., .	6,330,606 63	302,345 15	6 078,261 48	3 581 224 03	2,497,037 45	1,714 620 11	1,728,940 81
Sept., .	6,589 859 83	325,363 85	6,264,495 98	3 733 480 38	2,431 015 60	1,691,863 41	1,455,811 45
Oct., .	6,701 209 87	299 393 67	6,401,816 20	3,788,155 65	2 613,660 55	1,646 725 06	1,502,991 20
Nov., .	6,951,133 67	303 641 17	6,647,492 50	3,972 300 18	2 675,192 32	1,600,961 29	1 328,621 19
Dec., .	7,362,409 76	294 571 37	7,067 838 39	4,235,459 40	2,832,378 99	1,771,781 24	1,331,822 12
1880—Jan., .	7,735 257 38	295 517 60	7,439,739 78	4,436 788 55	3 002 951 23	1,832 963 04	1,455,194 98
Feb., .	8,187,012 49	322,568 93	7,864,443 56	4,602,286 49	3,262,157 07	1,607,663 89	1,178,111 92
March, .	8 621,097 49	351,130 35	8 269,967 14	4 811,894 33	3,458,072 81	1 815,133 31	1,396,037 88
April, .	9,662,554 59	388,558 16	9,273 796 43	5,846,536 60	3,427,259 83	1,739,297 37	723 794 73
May, .	10 306 078 79	454,193 73	9,851,885 06	6 361,320 05	3,490,565 01	1,552,240 91	975,061 26
June, .	11,266,771 77	477,431 69	10,789 340 08	7,397,131 89	3 392,208 19	1,781 937 29	848,339 08
July, .	12,039,010 00	475,446 56	11,563,563 44	8,125,241 25	3 438,322 19	1,890 161 44	1,095,528 25
Aug., .	12,749,623 28	462,997 28	12,286,636 00	8,635 394 80	3,651,241 20	1,904,452 70	1,177,448 42
Sept., .	13,618,726 03	332 398 71	13 236 327 32	9,287,193 94	3,949,133 38	2,075,105 26	1,115,184 71
Oct., .	14,020 877 39	391,331 55	13,629,545 84	9,448,615 77	4,180,930 07	1,999 487 98	1,498,285 06
Nov., .	14 656 891 55	341,262 67	14,315 628 88	10,083,824 08	4,231,804 80	1,859 991 50	1,064,146 39
Dec., .	15 369,758 67	361,184 83	15 008 573 84	10,913,283 49	4,095 290 35	1,987,283 54	1,207,923 35
1881—Jan., .	16,291,307 87	360,688 98	15,930,618 89	11,672,533 61	4,258 035 28	1,876 526 50	931,718 71
Feb., .	17,355,485 31	391,616 47	16 963 868 84	12,029 594 35	4,934,274 49	1,823,713 46	781,747 93
March, .	18,488,476 94	432 304 19	18 056 172 75	13 099 262 44	4 956 910 31	2 222,812 39	1,116,695 11
April, .	19,560,752 23	517,422 38	19,043 329 85	13,846 285 20	5,197 044 65	2,182 636 96	1,183,779 02
May, .	20,591,117 33	640 662 03	19,950,455 30	14,608 124 70	5,342 330 60	2,278 582 78	1,356,688 23
June, .	21 397,698 53	756 412 85	20,641,285 63	14 738,823 77	5,902,456 91	2,313,445 18	1,545,448 13
July, .	21,982,161 42	774,402 94	21,207,758 43	15,150,627 23	6,057,131 25	2,369,472 50	1,756,044 15
Aug., .	22,474,105 51	800 343 33	21,673,762 18	15,240,553 15	6,433,209 03	2 527,888 69	2,013,844 67
Sept., .	22,727,740 61	820,434 43	21,907 306 18	15,626,233 11	6 281,023 07	2,233 085 37	1,900,251 83
Oct., .	23,232,951 99	801,243 43	22 431,708 56	16,408,030 46	6 023 675 10	2 452,423 66	1,803,052 62
Nov., .	23,303,732 34	746,988 08	22,556 744 26	16 407 354 48	6,149,389 78	1,996,895 38	1,752 562 86
Dec., .	23,884 174 83	823,808 99	23 055,365 84	17,618,187 75	5,437,178 09	2 255 253 50	1,696 068 64
1882—Jan., .	24,243 382 26	762,111 53	23,481,270 73	17 788 245 97	5,693,024 76	1,984,325 23	1 547,945 23
Feb., .	24,727,244 28	842 067 85	23,935,176 43	18 291,296 87	5,643,879 56	2 062,742 98	1,601,191 43
March, .	25,663 298 81	887,210 88	24,776,087 93	19,039 780 73	5,736,327 20	2,305,538 30	1,453,354 46
April, .	26,519,252 22	993,150 92	25 526 101 30	19 963,183 00	5,562,918 30	2,145 965 63	1,381,093 10
May, .	27,518 619 53	1,161,739 36	26,356 880 17	20 622 520 38	5 734 309 79	2,339,170 39	1,496,506 23
June, .	28,311,823 53	1,344,852 60	26,966 475 93	21,282,495 62	5 688 980 31	2 419 934 81	1,796,712 55
July, .	28,955,781 79	1,330,498 28	27 625,283 51	22,037,273 31	5,588 015 20	2,509,606 49	1 982,695 71
Aug., .	30,198,208 64	1,370,660 62	28,827 548 02	22,094,815 90	6 732 732 12	3 176,053 39	1,870,745 07
Sept., .	31,068 182 32	1,473,646 07	29,594 536 25	23,824,360 13	5,770,176 12	2 569 036 20	1,799,316 21
Oct., .	31,390,694 71	981,249 05	30,409 445 66	24 283 352 42	6,126,093 24	2,369,517 35	1,834,217 13
Nov., .	31 900,475 68	894 397 98	31,006,077 70	25,722,724 08	5,283,353 62	1,970,991 00	1,157,166 36
Dec., .	32,859,088 91	1,068,847 17	31,790,241 74	25,420,570 77	6,369,670 97	2,013,995 86	964,908 48

STATEMENT—Continued.

	Gross stocks.	Sediment and surplus.	Net stocks.	Outstanding acceptances.	Credit balances.	Receipts from all sources.	Total deliveries.
1883—Jan.,	\$33,472,761 77	\$1,054,109 94	\$32,418,651 83	\$26,423 935 50	\$5 994,716 33	\$1,811,822 59	\$1,142,218 09
Feb.,	34 190,453 76	1,204,023 09	32,986,430 67	26,618,762 40	6,367,668 27	1,630,015 80	1,043,912 67
March,	34,655,372 59	1,543,361 15	33,112 011 44	25,853,292 32	7,258,719 12	1,783,537 51	1 378,966 55
April,	35,089,989 04	1,966,262 60	33,123,726 44	25,393,241 53	7,730,484 91	1,856,792 91	1,584 047 32
May,	35,577,182 89	2,210,712 30	33,366,470 59	27,084 933 67	6,281,536 92	1,895,282 60	1 637,203 41
June,	36,049,470 50	2,393 128 89	33 656 341 61	28,591,100 76	5,065,240 85	1,842,012 03	1 536,750 87
July,	36,424,622 82	2,428,857 55	33 995,765 27	27,873 375 77	6,122,389 50	1,716,991 88	1,367,572 93
Aug.,	36,227,589 03	2,522,876 30	33 704 712 73	27 937,602 52	5 767,110 21	1,800,032 23	1,776,750 98
Sept.,	35 792,108 67	2 375,432 36	33,416,676 31	27 736,393 02	5,680,283 29	1,672 488 38	1,951,490 23
Oct.,	35,510,912 40	2 257,978 17	33,252 934 23	27 623,847 75	5,629,086 48	1,750,479 04	1 900,918 19
Nov.,	35,245 242 24	2,104,792 81	33 140,449 43	28,307,351 75	4,833 097 68	1,635,745 42	1,736,517 39
Dec.,	35 253,282 49	1,966,339 04	33 286,943 45	28 603,136 25	4,683,807 20	1,679,952 46	1,518 998 40
1884—Jan.,	35,169,769 55	1,885,935 58	33,280,833 97	27,668,523 25	5,612,310 72	1,528,408 66	1,517,829 69

The above figures are in barrels of forty-two gallons each.

TABLE showing the yearly and the total production of the several Oil Districts of Pennsylvania and New York from the commencement of developments to January 1, 1883.

YEAR.	Average selling price— of crude at wells— per barrel.	Oil Creek division.	Central Allegheny di- vision.	Tidoute and Fagn- us division.	Beaver and Smith's Ferry division.	Pitt-Hole and Cashup division.	Butler and Armstrong division.	Clarion division.	Bradford division.	Warren and Forest division.	Bullion division.	Allegheny county di- vision, New York.	Total gallons. of 42 barrels
1859, . . .	\$10 00	2,000	75,000	5,000	20,000	300,000	1,000	2,000	1,000	1,000	1,000	1,000	2,000
1860, . . .	9 60	120,000	170,000	50,000	20,000	900,000	5,000	5,000	1,000	1,000	1,000	1,000	200,000
1861, . . .	49	1,870,000	125,000	40,000	30,000	40,000	8,000	20,000	1,000	1,000	1,000	1,000	2,110,000
1862, . . .	1 05	2,860,000	80,000	30,000	20,000	30,000	25,000	30,000	1,000	1,000	1,000	1,000	3,055,000
1863, . . .	3 15	2,480,000	80,000	30,000	15,000	30,000	45,000	35,000	1,000	1,000	1,000	1,000	2,610,000
1864, . . .	9 87 $\frac{1}{2}$	2,000,000	85,000	30,000	20,000	300,000	1,000	75,000	1,000	1,000	1,000	1,000	2,130,000
1865, . . .	6 59	1,600,000	100,000	100,000	20,000	300,000	900,000	310,000	1,000	1,000	1,000	1,000	2,721,000
1866, . . .	3 74	2,000,000	200,000	600,000	25,000	900,000	1,700,000	830,000	1,000	1,000	1,000	1,000	3,732,000
1867, . . .	2 41	1,950,000	200,000	850,000	20,000	500,000	5,000	20,000	1,000	1,000	1,000	1,000	3,583,000
1868, . . .	3 62 $\frac{1}{2}$	2,300,000	300,000	750,000	20,000	300,000	25,000	35,000	1,000	1,000	1,000	1,000	3,716,000
1869, . . .	5 03 $\frac{1}{2}$	3,000,000	350,000	800,000	20,000	100,000	45,000	75,000	1,000	1,000	1,000	1,000	4,351,000
1870, . . .	3 89	2,900,000	400,000	1,000,000	20,000	75,000	900,000	310,000	1,000	1,000	1,000	1,000	5,371,000
1871, . . .	4 34	2,200,000	800,000	1,000,000	20,000	100,000	1,100,000	830,000	2,000	2,000	2,000	2,000	5,531,000
1872, . . .	3 64	1,700,000	800,000	900,000	25,000	200,000	1,700,000	2,500,000	2,000	2,000	2,000	2,000	6,357,000
1873, . . .	1 83	1,200,000	800,000	400,000	30,000	100,000	4,400,000	3,300,000	2,000	2,000	2,000	2,000	9,932,000
1874, . . .	1 17	800,000	500,000	400,000	30,000	50,000	5,200,000	2,750,000	3,000	3,000	3,000	3,000	10,883,000
1875, . . .	1 35	550,000	400,000	350,000	35,000	40,000	4,650,000	2,400,000	25,000	1,000	1,000	1,000	8,801,000
1876, . . .	2 56 $\frac{1}{2}$	650,000	350,000	350,000	35,000	30,000	4,700,000	2,400,000	380,000	55,000	65,000	65,000	9,015,000
1877, . . .	2 42	800,000	450,000	310,000	62,000	15,000	5,500,000	3,000,000	1,450,000	150,000	1,300,000	1,300,000	13,043,000
1878, . . .	1 19	750,000	350,000	300,000	32,000	10,000	4,600,000	2,250,000	6,300,000	110,000	505,000	505,000	15,307,000
1879, . . .	85 $\frac{1}{2}$	500,000	250,000	250,000	82,000	5,900	2,800,000	1,400,000	14,200,000	50,000	290,000	290,000	19,827,000
1880, . . .	94 $\frac{1}{2}$	400,000	170,000	230,000	103,000	3,000	1,700,000	850,000	22,300,000	90,000	147,000	147,000	26,048,000
1881, . . .	85 $\frac{1}{2}$	350,000	150,000	220,000	100,000	1,400,000	1,400,000	600,000	23,000,000	440,000	128,000	128,000	27,238,000
1882, . . .	78 $\frac{1}{2}$	280,000	155,000	195,000	80,000	1,300,000	1,300,000	600,000	18,000,000	3,300,000	100,000	100,000	30,460,000
1883, . . .	1 07 $\frac{1}{2}$	33,262,000	7,260,000	9,860,000	904,000	3,378,000	33,934,000	21,827,000	85,865,000	4,196,000	2,541,000	7,055,000	216,083,000

Geographical range of the several Divisions, with names and dates of Pioneer wells.

OIL CREEK DIVISION.—Oil Creek Valley and borders, Cherry Run, Keech Farm, West Pit-Hole, Pleasantville and surroundings, Enterprise, Shamburg, Octave, Titusville, and Church Run. *Commenced producing.*—August 28, 1859, from Drake well, near Titusville, well 69½ feet deep; production about 10 barrels a day.

CENTRAL ALLEGHENY DIVISION.—Allegheny river, from Scrubgrass to East Hickory, including East Sandy, Bully Hill, Franklin, Reno, Slate Run, Walnut Bend, Henry's Bend, and mouth of West Hickory. *Commenced producing.*—In fall of 1860, Evans well and others at Franklin.

TIDIOUTE DIVISION.—Tidioute, Economy, Dennis Run, Triumph, New London, Colorado, and Fagundus. *Commenced producing.*—In fall of 1860, Island well, at Tidioute; Economy well "A," or flowing well, struck December 25, 1860.

BEAVER DIVISION.—Smith's Ferry, Ohioville, and Slippery Rock. *Commenced producing.*—December, 1860, Patton, Finlen, Swan & Co.'s well; oil at 180 feet.

PIT-HOLE DIVISION.—Holmden, Morey, Bail and Hooker farms, and the Cashup pool. *Commenced producing.*—January 7, 1865, United States Oil Company's "Frazer Well."

BUTLER AND ARMSTRONG DIVISION.—Embracing all the oil territory in those two counties. *Commenced producing.*—October, 1865, 'Tom's Run well, near Parker's; January 3, 1866, Brady's Bend well, No. 1; March 23, 1878, Troutman well, at Modoc.

CLARION DIVISION.—Foxburg, Richey Run, Emlenton, St. Petersburg, Edenburg, and Shippensburg. *Commenced producing.*—In 1866, name of first well not ascertained.

BRADFORD DIVISION.—The "Northern Oil Field" of McKean county, Pennsylvania, and Cattaraugus county, New York. *Commenced producing.*—In summer of 1868, Moses well, No. 3, about 5 barrels; November, 1871, Foster Oil Company's well, No. 1, about 10 barrels; December, 1874, Butt's well, No. 1, about 70 barrels; summer of 1875, Olmstead well.

WARREN AND FOREST DIVISION.—Warren, Stoneham, Clarendon, Cherry Grove, and Sheffield, in Warren county, and Balltown, Blue Jay, and Cooper districts, in Forest county. *Commenced producing.*—March, 1875, Beatty well, No. 1, at East Warren; April, 1877, Grandin & Berry, No. 1, at Balltown; summer of 1877, Hulings well, Blue Jay district; January 12, 1878, Tolles, No. 1, Stoneham; June 24, 1880, Eagan, No. 1, Clarendon; April 1881, Magee & Horton, No. 1, south of Sheffield; May 17, 1882, "The Mystery," Cherry Grove; September 15, 1882, Shannon well, No. 1, Cooper tract.

BULLION DIVISION.—Bullion run and its surroundings, in Venango county. *Commenced producing.*—May, 1876, Phillips Brothers' well, No. 1.

ALLEGANY COUNTY DIVISION.—Richburgh, Bolivar, Genesee, Alma, &c., in Allegany county, New York. *Commenced producing.*—June, 1879, Triangle well, No. 2, about 4 barrels; July, 1880, Triangle, No. 3, about 15 barrels; May, 1881, Richburgh, No. 1, about 35 barrels.

QUANTITY of Crude Petroleum produced in, and the quantity and value of Petroleum and its products exported from, the United States during each of the fiscal years from 1864 to 1883, inclusive, year ending June 30.

YEARS.	PRODUCTION.		EXPORTS.											
	Barrels of 42 gallons.	Gallons.	MINERAL, REFINED, OR MANUFACTURED.											
			Mineral, Crude, including all natural oils of whatever gravity.		Naphtha, Benzine, Gasoline, &c.		Illuminating.		Lubricating, (heavy Paraffine, &c.)		Residuum, tar, pitch, &c., from which the light bodies have been distilled.		Total.	
					Galls.	Dolls.	Galls.	Dolls.	Galls.	Dolls.				
1864.	2,478,709	104,105,778	9,980,654	3,864,187	438,197	154,091	12,791,518	6,764,411	.....	.....	.....	.....	23,210,369	10,752,689
1865.	2,424,905	101,846,010	12,293,897	6,868,513	480,947	173,943	12,722,005	9,520,957	.....	.....	.....	.....	25,496,849	16,563,413
1866.	3,165,700	132,939,400	16,057,943	6,015,921	673,477	188,825	34,255,921	18,626,141	.....	.....	.....	.....	50,987,341	24,830,887
1867.	3,591,900	150,859,800	7,344,248	1,861,001	224,576	34,175	62,686,697	22,568,466	.....	.....	.....	.....	70,255,481	24,477,642
1868.	3,613,709	151,775,778	10,029,659	1,564,933	1,517,268	267,873	67,909,961	19,977,870	.....	.....	.....	.....	79,456,883	21,810,676
1869.	4,046,558	169,955,436	13,425,566	2,994,404	2,673,094	445,770	84,403,492	27,636,137	134,532	51,122	.....	.....	100,636,684	31,127,433
1870.	4,411,016	185,262,672	10,403,314	2,237,292	5,422,604	564,864	97,902,505	29,864,193	6,871	2,611	.....	.....	113,735,294	32,668,960
1871.	5,558,775	233,468,550	9,859,638	1,971,847	7,203,592	746,797	132,608,955	34,138,736	59,632	22,660	155,474	14,770	149,892,691	36,894,810
1872.	5,842,497	245,384,874	13,569,768	2,307,111	8,092,635	932,160	122,539,575	30,566,108	51,419	211,287	438,186	41,724	145,171,583	34,053,890
1873.	7,242,343	304,178,406	18,439,407	3,010,050	9,748,593	1,437,439	158,102,414	37,195,735	748,639	277,966	781,074	79,566	187,815,187	42,050,756
1874.	11,138,741	469,927,122	17,776,419	2,090,696	9,737,457	1,038,622	217,220,504	37,560,995	1,244,305	404,243	1,827,798	142,299	247,806,483	41,245,815
1875.	10,083,828	423,520,776	14,718,114	1,405,018	11,758,940	1,141,440	191,551,933	27,030,361	1,173,473	313,646	2,752,848	187,103	221,955,308	30,073,568
1876.	8,823,142	370,571,964	20,520,397	2,220,268	14,780,236	1,442,811	204,814,673	28,755,633	983,442	303,863	2,681,404	193,206	243,660,152	32,915,786
1877.	10,822,871	454,560,582	26,819,262	3,756,729	16,140,133	1,816,682	262,441,844	55,401,132	1,601,065	497,540	3,196,620	317,355	309,198,914	61,789,438
1878.	14,738,262	619,007,004	26,936,727	2,694,018	16,416,821	1,411,812	289,214,541	41,513,676	2,304,621	639,331	3,908,790	316,087	338,484,303	46,574,974
1879.	16,917,606	710,539,452	25,874,488	2,180,413	15,054,861	1,253,780	331,586,442	35,999,882	2,487,081	655,468	3,807,038	210,726	378,310,010	40,305,249
1880.	22,382,569	940,065,378	28,297,997	1,927,207	18,411,044	1,192,229	367,825,823	31,788,575	5,162,835	1,039,124	4,767,000	276,490	423,964,699	36,218,625
1881.	25,805,363	1,063,225,246	30,984,844	3,065,464	17,292,310	1,693,975	332,293,045	34,317,695	4,852,203	1,054,203	3,247,860	184,411	397,660,262	40,315,009
1882.	28,650,181	1,203,307,602	41,304,997	3,129,511	20,213,098	1,809,143	488,213,033	44,588,874	6,508,100	1,492,396	3,715,362	212,802	559,954,590	51,232,706
1883.	26,662,808	1,119,837,936	52,712,306	3,914,941	17,070,537	1,302,286	419,821,081	36,926,574	10,182,342	2,326,632	6,145,356	442,646	505,931,622	44,913,079
1883, Jan. 1 to Jan. 1, 1884.	23,123,839	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	532,736,948	47,762,039

LUM

TABLE showing the number of mills, production, etc., of Lumber,
the year ended

COUNTY.	Number of mills.	Average number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Power used—steam or water.	Total horse-power.	Number of saws.	White pine—feet.	Hemlock—feet.
1. Blair,	7	151	124	\$50,241 92	1—W 4—S	200	21	3,870,622	3,449,070
2. Bradford,	21	150	169	43,566 00	6—W 15—S	605	65	1,387,000	11,631,000
3. Bucks,	3	230	26	7,290 00	2—W 1—S	85	10	.....	.....
4. Cambria,	4	80	63	16,835 00	2—W 3—S	115	13	100,000	2,005,000
5. Cameron,	3	575	57	20,537 50	2—S	95	14	150,000	9,100,000
6. Centre,	18	156	582	201,434 30	4—W 9—S	1,008	334	12,959,965	12,333,289
7. Clarion,	6	182	185	54,718 00	1—W 4—S	289	19	9,550,000	7,250,030
8. Clearfield,	12	158	219	74,607 67	3—W 10—S	652	121	2,218,669	17,326,680
9. Clinton,	7	110	104	33,900 50	4—W 3—S	320	30	12,797,277	5,106,215
10. Columbia,	3	89	21	3,100 00	1—W 2—S	85	8	135,000	350,000
11. Crawford,	29	167	207	46,846 17	1—W 24—S	689	59	2,923,741	5,574,000
12. Dauphin,	4	178	129	19,423 33	4—S	230	12	1,838,820	401,235
13. Elk,	12	171	545	142,707 54	2—W 8—S	1,010	59	3,640,000	36,100,000
14. Erie,	16	157	96	27,567 29	3—W 13—S	446	43	794,184	8,745,260
15. Forest,	4	162	81	22,300 00	1—W 4—S	100	8	1,450,000	3,960,000
16. Indiana,	5	130	30	1,740 00	3—W 1—S	90	14	1,565,000	985,000
17. Jefferson,	1	75	6	500 00	1—S	40	5	.....	.....
18. Lackawanna,	5	153	68	18,872 38	1—W 3—S	175	2	20,000	3,236,575
19. Lancaster,	1	250	10	4,250 00	1—S	.....	1	.....	.....
20. Luzerne,	3	275	18	8,850 00	2—S	90	4	800,000	700,000
21. Lycoming,	58	142	1,198	382,528 54	18—W 31—S	2,338	718	101,870,697	55,144,706
22. McKean,	29	185	594	34,246 75	3—W 18—S	1,251	108	1,295,000	79,350,000
23. Mercer,	18	162	382	101,000 00	6—S	565	52	450,000	435,000
24. Monroe,	1	250	20	7,000 00	1—W	.....	4	300,000	1,800,000
25. Perry,	2	170	7	310 25	1—W 1—S	22	3	.....	5,000
26. Potter,	2	150	9	500 00	2—W 1—S	15	7	40,000	225,000
27. Somerset,	4	200	34	12,826 14	1—W 2—S	105	14	625,000	1,105,000
28. Sullivan,	1	200	4	500 00	1—W	25	3	.....	300,000
29. Susquehanna,	4	125	6	1,170 59	4—W	65	6	230,000	775,000
30. Tioga,	1	40	7	500 00	1—S	.....	2	.....	.....
31. Union,	1	150	2	147 78	1—W	20	3	33,084	2,459
32. Warren,	28	179	435	114,552 87	3—W 25—S	813	71	6,426,663	19,077,658
33. Wayne,	22	44	99	22,398 00	13—W 6—S	341	34	346,200	9,236,000
34. Westmoreland,	4	200	80	2,400 00	1—S	75	10	1,000,000	300,000
35. Wyoming,	2	150	5	400 00	2—W	37	3	.....	450,000
	341	165	5,520	\$1,580,768 52	85—W 206—S	12,696	1,880	168,816,922	296,459,227

BER.

in the several counties, as compiled from reports to the Bureau, for December 31, 1883.

Cherry—feet.	Ash—feet.	Chestnut—feet.	Walnut—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousands.	Lath—thousands.	Staves and headings—thousands.	Pickets, B. H. &c, —thousands.	Number.
.....	.....	.....	.....	575,560	.....	1,124,500	885,800	.....	25,000	1
507,000	469,200	140,500	.....	411,500	261,000	562,000	1,220,000	.....	222,000	2
3,000	46,000	19,000	48,000	370,000	88,000	.....	6,000	.....	4,000	3
10,000	.....	.....	.....	10,000	105,000	728,000	78,000	350,000	.....	4
.....	15,000	.....	.....	300,000	2,600,000	.....	.....	.....	.....	5
.....	118,551	89,350	87,406	2,673,167	928,350	88,335,212	6,217,000	5,344,587	567,000	6
.....	.....	2,000	.....	1,425,000	.....	1,300,000	1,600,080	500,000	.....	7
.....	271,000	503,408	.....	552,447	829,122	10,807,500	3,258,107	200,271	339,417	8
.....	.....	49,010	.....	21,540	4,379,005	329,000	866,850	.....	784,204	9
.....	.....	5,000	.....	300,000	.....	.....	.....	.....	.....	10
49,000	246,500	155,000	10,000	2,125,000	1,623,404	4,051,630	811,168	3,250,000	.....	11
.....	1,000	.....	.....	428,262	16,778	4,950,400	122,000	1,020,889	54,000	12
4,002,000	1,030,000	22,000	.....	1,000,000	140,000	1,265,750	2,343,000	.....	400	13
34,554	210,587	36,000	34,000	68,000	1,030,550	495,400	56,000	.....	12,500	14
25,000	25,000	20,000	.....	820,000	50,000	.....	500,000	.....	100,000	15
160	.....	200	.....	1,000	1,300	4,300,000	290,000	.....	.....	16
.....	.....	.....	.....	.....	75,000	800,000	.....	.....	.....	17
.....	15,000	20,000	.....	60,000	825,000	.....	600,000	.....	.....	18
.....	.....	.....	.....	50,000	.....	.....	.....	.....	.....	19
1,000	10,000	25,000	.....	37,000	300,000	200,000	.....	.....	.....	20
180,870	460,827	120,707	30,000	1,101,650	2,402,324	20,705,000	39,768,100	.....	2,875,640	21
5,600,000	613,000	8,000	.....	38,000	5,529,000	1,145,000	1,960,000	.....	183,000	22
.....	33,000	106,000	.....	136,000	350,000	.....	232,714	14,021,850	.....	23
.....	.....	.....	.....	.....	300,000	50,000	500,000	.....	100,000	24
.....	.....	10,000	2,600	.....	43,700	.....	21,300	.....	5,000	25
7,000	12,000	21,000	.....	4,000	30,000	85,650	.....	.....	.....	26
.....	.....	.....	.....	10,000	.....	.....	437,200	.....	40,000	27
40,000	10,000	.....	.....	.....	50,000	.....	.....	.....	.....	28
.....	25,000	45,000	.....	25,000	8,200	.....	125,000	.....	.....	29
.....	.....	.....	.....	.....	.....	.....	.....	135,000	.....	30
420	2,804	2,559	7,698	60,048	5,521	2,619	.....	.....	1,637	31
608,230	1,047,494	375,000	.....	1,842,258	1,514,470	6,598,450	1,645,500	2,600,000	.....	32
70,000	314,000	229,000	.....	900,000	461,157	400,000	834,000	.....	6,000	33
12,000	2,000	.....	.....	2,100,000	.....	.....	150,000	.....	20,000	34
.....	.....	.....	.....	.....	100,000	.....	.....	.....	.....	35
11,155,224	4,977,963	2,008,734	219,704	17,441,432	24,048,881	149,236,111	64,577,819	17,422,597	5,339,798	

LUMBER.—

COUNTY.	Number of mills.	Average number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Power used—steam or water.	Total horse-power.	Number of saws.	White pine—feet.	Hemlock—feet.
1. Adams,	4	117	9	\$1,260 00	3—W 1—S	32	10	27,400	20,000
2. Allegheny,	14	180	174	95,414 07	1—W 13—S	473	36	20,207,780	7,093,241
3. Armstrong,	3	60	12	1,960 00	1—W 2—S	20	3	600	80,800
4. Beaver,	2	180	15	7,075 00	2—S	90	6	200,000	100,000
5. Bedford,	7	88	15	2,194 60	4—W 1—S	40	10	53,200	28,500
6. Berks,	8	113	27	2,702 80	6—W 3—S	112	10	135,500	420
7. Blair,	7	145	58	103,676 00	7—S	245	20	2,800,000	4,063,490
8. Bradford,	30	182	214	21,564 64	5—W 14—S	785	61	2,532,967	8,097,473
9. Bucks,	9	162	20	1,560 00	6—W 2—S	113	16	200,000	
10. Butler,	1	1			1—W		1		
11. Cambria,	15	118	107	27,537 42	7—W 4—S	284	24	984,937	5,996,144
12. Cameron,	2	124	40	4,170 00	2—S	110	29	1,200,000	6,700,316
13. Carbon,	1	200	5	1,500 00	1—W		3	20,000	300,000
14. Centre,	20	113	400	23,383 04	14—W 5—S	332	59	4,149,045	4,511,766
15. Clarion,	7	120	89	15,575 01	1—W 6—S	250	10	4,515,000	1,225,000
16. Chester,	12	144	27	6,072 50	11—W 1—S	141	29	160,000	
17. Clearfield,	18	137	311	93,338 05	3—W 7—S	872	195	23,310,771	14,699,351
18. Clinton,	6	55	6	500 00	4—W 2—S	59	17	63,341	145,000
19. Columbia,	3	65	8	190 00	1—W 1—S	65	3	115,000	30,000
20. Crawford,	8	161	74	24,063 75	2—W 7—S	340	16	2,560,000	2,610,000
21. Cumberland,	4	183	53	26,463 08	2—W 2—S	65	12	458,204	495,680
22. Dauphin,	5	207	57	17,647 68	2—W 3—S	135	23	2,693,928	1,149,085
23. Delaware,	3	245	17	7,546 00	2—W 1—S	82	9	1,050,000	1,100,000
24. Elk,	6	116	5	1,330 00	3—W		6	1,040,000	3,380,000
25. Erie,	4	245	22	1,430 00	1—W 3—S	133	16	230,000	3,200,000
26. Fayette,	7	149	41	13,423 15	2—W 5—S	180	12	360,000	472,000
27. Forest,	1	200	10	3,250 00	1—W	140	4	2,350,000	600,000
28. Franklin,	7	99	9	445 50	5—W 1—S	20	9	2,700	
29. Fulton,	2	120	1		2—W	30	1	2,000	
30. Greene,	2	62	6	70 00	1—S	26	2		
31. Huntingdon,	6	107	35	8,613 08	3—W 3—S	73	10	40,000	
32. Indiana,	16	98	101	16,702 16	11—W 3—S	255	40	2,697,288	1,433,464
33. Jefferson,	14	159	168	45,219 88	3—W 11—S	385	30	8,754,000	11,731,000
34. Juniata,	6	189	26	5,251 29	3—W 2—S	69	8	59,662	13,091
35. Lackawanna,	5	241	32	11,375 00	4—S	130	7	1,009,106	1,440,575
36. Lancaster,	10	123	33	7,791 89	7—W 3—S	128	21	440,956	491,872
37. Lawrence,	3	193	20	5,746 50	3—S	80	4		
38. Lehigh,	10	111	5	105 00	10—W	68	12	25,700	1,000
39. Luzerne,	4	231	24	8,150 00	3—W 1—S	115	16	831,500	3,350,000
40. Lycoming,	20	110	329	72,949 44	9—W 11—S	747	186	13,355,161	26,052,812

SAW-MILLS.

Cherry—feet.	Ash—feet.	Chestnut—feet.	Walnut—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Staves and headings—thousand.	Pickets, B. H., &c.—thousand.	Number.
.....	5,390	50,000	7,188	113,328	33,200	300,000	73,200	.....	2,000	1
.....	.....	.....	28,000	4 050,350	50,000	.....	550,845	.....	558,005	2
11,000	1,500	1,200	5,800	204,000	193,000	.....	1,000	.....	.....	3
.....	.....	.....	10,000	190,000	10,000	400,000	300,000	.....	.....	4
200	2,200	8,000	2,500	564,541	207,000	.....	81,500	.....	8,000	5
1,000	5,969	54,966	5 500	370,532	301,227	.....	68,545	.....	5,000	6
11,404	110,476	44 664	.....	2,664,468	636,220	300,000	1,200,000	.....	100,000	7
25,623	275,119	82,000	76 386	720,884	2,357,594	1,095,350	377,962	.....	.....	8
2,000	11,000	20,500	10,800	1,005,000	339,000	.....	.....	.....	.....	9
.....	.....	.....	.....	9,000	.....	.....	7,000	.....	.....	10
565,000	130,604	39,390	1,400	63,706	240,280	20,000	880,000	.....	18,000	11
.....	10,000	.....	.....	395,605	.....	200,000	1,000,000	.....	.....	12
.....	.....	100,000	.....	100,000	.....	.....	200,000	.....	25,000	13
700	25,500	214,400	28 500	1,406,720	1,747,362	2,179,931	1,630,181	60,000	686,087	14
.....	.....	.....	.....	386,000	140,000	100,000	1,000,000	.....	30,000	15
.....	19,220	84,572	37,202	271,202	128,604	.....	17,350	.....	6,800	16
15,000	16,000	39,000	.....	490,000	356,643	16,815,600	4,581 600	.....	50,000	17
600	.....	5,122	911	68,964	54,200	394,895	25,600	.....	.....	18
.....	.....	.....	.....	170,000	300	110,000	.....	.....	.....	19
31,000	387,000	265,000	100	195,000	830,000	105,000	1,000,000	.....	.....	20
.....	.....	.....	.....	197,443	.....	118,000	262,000	2,027,246	19,000	21
.....	7,000	3 000	.....	482,945	.....	199,000	526,800	1,000,000	288,732	22
.....	11,004	22,260	34 040	154,513	46,030	.....	10,000	.....	25,000	23
.....	.....	.....	.....	6,000	.....	200,000	.....	.....	.....	24
234,000	146,000	30,000	.....	72,000	820,000	520,000	.....	260,000	5,000	25
45,000	73,000	86,000	15,000	549,568	882,000	303,591	.....	.....	17,000	26
.....	.....	.....	.....	50 000	.....	.....	600,000	.....	.....	27
347	260	15,500	1,000	149,643	111,064	.....	27,129	.....	.....	28
.....	1,000	.....	.....	500	.....	.....	10,000	.....	.....	29
.....	300	400	10 000	50,000	.....	.....	.....	.....	.....	30
.....	.....	400	10,000	1,501,500	285,000	2,000	10,000	.....	58,039	31
10,500	5,700	5 000	.....	225,476	629 312	1,116,000	46,669	.....	64,000	32
41,000	170,000	23,000	.....	1,057,000	165,000	4,500,000	2,726,000	200,000	50,000	33
.....	.....	12,405	.....	894,666	47,275	.....	33,000	.....	2,000	34
10,000	14,033	.....	.....	5 000	1,182 760	.....	650,000	.....	.....	35
31,000	47,500	123,307	82,000	830,963	58,000	150,000	70,500	.....	79,000	36
16,500	10,000	17 000	34,500	1,210,000	238,000	.....	.....	.....	.....	37
3,280	109,920	138,324	105,697	362,259	252 613	.....	43,462	.....	12,246	38
10,000	24,000	69,000	.....	149,891	45,000	.....	1,140,000	.....	105,000	39
6,883	69,730	58,008	.....	202,968	1,366,052	260,000	8,223,282	.....	575,546	40

LUMBER—

COUNTY.	Number of mills.	Average number of days in operation during the year.	Total number of persons employed.	Total amount paid in wages during the year.	Power used—steam or water.	Total horse power,	Number of saws.	White pine—feet.	Hemlock—feet.
41. McKean,	7	191	220	\$47,857 10	1—W 4—S	325	16	1,107,000	11,086,000
42. Mercer,	9	110	37	3,013 50	1—W 8—S	119	15	68,000	50,000
43. Mifflin,	1	100	1	.. . . .	1—W	20	3	2,000	.. . . .
44. Monroe,	5	192	51	14,225 00	5—W 1—S	177	17	1,570,500	671,000
45. Montour,	3	106	33	16,650 00	2—W 2—S	106	4	.. . . .	400,000
46. Northampton,	2	165	4	1,055 20	1—W 1—S	41	8	2,000	819,000
47. Northumberland,	8	229	127	73,405 11	1—W 4—S	29	23	2,975,923	1,770,919
48. Perry,	7	102	44	9,776 80	3—W 4—S	189	21	175,000	170,000
49. Philadelphia,	4	239	115	33,392 50	1—W 3—S	225	27	2,476,915	150,000
50. Potter,	12	104	52	10,753 50	5—W 8—S	330	31	175,000	4,512,000
51. Schuylkill,	4	137	8	1,885 00	3—W 1—S	60	6	295,000	360,000
52. Snyder,	10	101	60	5,250 00	8—W 3—S	135	35	562,500	560,000
53. Somerset,	18	95	61	7,625 70	12—W 6—S	160	34	923,534	1,057,000
54. Sullivan,	5	113	27	5,350 00	2—W 3—S	145	15	16,000	302,000
55. Susquehanna,	29	120	95	14,154 50	21—W 10—S	607	49	302,117	7,176,690
56. Tioga,	26	131	202	48,514 00	9—W 18—S	733	118	417,748	19,724,329
57. Venango,	1	26	3	.. . . .	1—S	16	1	.. . . .	.. . . .
58. Warren,	6	126	31	4,240 50	1—W 5—S	172	18	551,000	1,670,000
59. Washington,	5	44	13	400 00	2—W 3—S	43	7	.. . . .	.. . . .
60. Wayne,	8	148	15	3,090 00	7—W 1—S	117	18	132,214	1,152,394
61. Westmoreland,	9	72	28	3,798 00	4—W 5—S	163	10	.. . . .	.. . . .
62. Wyoming,	15	177	64	18,136 25	9—W 6—S	172	33	184,500	6,675,000
63. York,	10	114	8	370 00	10 W	59	23	40,000	12,000
	516	136	3,904	\$1,015,194 12	250—W 235—S	11,397	1,523	110,530,751	169,140,413

Continued.

Cherry—feet.	Ash—feet.	Chestnut—feet.	Walnut—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Staves and headings—thousand.	Pickets, B. H., &c.—thousand.	Number.
1,044,600	392,200	51,000	.....	2,000	707,200	110,000	.....	.....	.....	41
15,400	146,000	110,000	5,000	788,000	1,012,000	212,000	52,000	.....	5,000	42
.....	2,500	1,900	15,000	3,500	.....	.....	.....	.....	.....	43
500	2,500	72,500	10,000	130,000	595,000	100,000	2,000,000	.....	240,000	44
5,000	15,000	15,000	15,000	202,000	20,000	.....	30,000	.....	5,000	45
4,000	1,000	25,000	1,000	152,100	46,475	.....	5,000	.....	2,850	46
265	10,480	1,243	.....	3,464,125	53,335	1,942,400	2,185,000	.....	80,125	47
.....	50,000	21,500	8,000	230,000	63,000	520,000	61,000	1,720,000	22,000	48
4,000	.....	15,000	90,000	735,537	4,346,981	.....	200,000	.....	20,000	49
287,500	90,000	10,000	.....	10,000	385,000	1,330,000	350,000	.....	.....	50
.....	.....	20,000	11,000	315,000	25,000	23,000	107,000	.....	40,000	51
.....	.....	10,000	6,300	163,500	151,500	997,750	575,000	338,000	267,000	52
23,830	12,615	105,095	2,883	2,578,828	29,670	940,000	228,961	.....	2,000	53
15,000	23,000	.....	2,000	.....	265,000	.....	200,000	.....	50,000	54
83,325	272,001	217,703	2,450	91,795	1,258,769	.....	560,000	.....	.....	55
198,075	197,133	41,400	.....	200,810	809,636	1,030,000	1,345,000	200,000	1,500	56
.....	.....	30,000	.....	30,000	18,000	.....	.....	.....	.....	57
.....	17,000	60,000	.....	43,000	216,000	400,000	150,000	.....	.....	58
.....	.....	1,000	2,000	76,000	101,000	.....	.....	.....	.....	59
2,000	57,506	27,427	.....	2,029	345,969	255,000	53,800	.....	3,500	60
1,300	4,000	62,900	7,500	1,089,186	100,400	.....	13,116	.....	.....	61
.....	112,000	45,000	.....	562,000	283,000	.....	823,000	.....	122,000	62
1,250	41,220	191,298	1,500	225,179	16,000	217,300	34,000	.....	37,625	63
2,758,082	3,140,520	2,736,484	683,657	32,587,224	24,735,671	37,466,814	36,351,342	5,805,246	3,686,055	

TANNERIES.

TABLE showing the number of Tanneries, the production, &c., in the several counties of Pennsylvania, compiled from returns made to the Bureau for the year ending December 31, 1892.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages.	Value of manufactured product.	Number of tons of chestnut oak bark used.	Number of tons of hemlock bark used.
Adams,	5	229	12	\$1,750 00	\$23,036 00	470	
Allegheny,	13	278	433	257,379 12	1,643,683 47	20,700	10,945
Armstrong,	4	237	11	3,750 00	26,500 00	443	200
Beaver,	1	150	1		700 00	10	
Bedford,	14	241	166	64,522 75	1,063,410 00	19,881	150
Berks,	15	286	93	42,260 51	242,980 00	2,460	20
Blair,	5	265	47	23,581 07	290,494 00	1,950	3,730
Bradford,	8	262	129	59,884 00	726 000 00	628	13,320
Bucks,	10	300	22	12,435 00	43,100 00	615	
Butler,	2	275	2	500 00	2,500 00	180	10
Cambria,	5	282	42	16,563 06	255,851 00	625	4,600
Cameron,	2	300	165	81,453 69	250 000 00		15,500
Carbon,	2	271	4		62 500 00	430	200
Centre,	10	292	67	26,930 26	395 097 00	1,825	6,632
Chester,	3	307	13	4,750 00	54 000 00	465	
Clarion,	2	250	5	863 75	3,775 07	65	34
Clearfield,	5	238	71	28,344 00	454,000 00	1,270	9,060
Clinton,	4	300	128	54,270 00	833,508 37	2,969	12,012
Columbia,	6	279	15	4,250 00	53,500 00	830	10
Crawford,	6	238	51	22,077 80	130,895 00	1,550	2,020
Cumberland,	11	288	43	12,008 75	154,700 00	3,160	
Dauphin,	10	299	43	14,788 62	107,964 75	2,063	
Elk,	3	294	141	53,325 00	610,000 00		20,400
Erie,	9	301	104	41,720 04	431,637 54	2,550	6,165
Fayette,	5	242	20	4,499 01	12,331 00	1,046	
Franklin,	9	276	16	5,383 60	30,057 00	634	6
Fulton,	3	303	23	2,748 80	86,600 00	3,025	
Greene,	2	300	8	1,800 00		105	
Huntingdon,	11	285	137	48,188 15	490,748 67	16,408	1,615
Indiana,	5	256	5	1,512 00	17,350 00	172	10
Juniata,	8	265	28	5,612 00	94,978 00	91,202	152
Lackawanna,	2	300	51	22,810 00	100,000 00	575	3,200
Lancaster,	12	288	98	33,522 00	268,400 00	4,995	30
Lawrence,	1	200	1	350 00	2,500 00	15	15
Lebanon,	5	279	19	6,156 00	45,587 62	870	
Lehigh,	15	289	96	34,143 00	423,500 00	2,658	7,700
Luzerne,	6	284	48	11,536 00	46,000 00	2,315	1,170
Lycoming,	12	272	290	129,415 32	1,447,318 83	2,830	30,570
McKean,	2	305	34	16,600 00	170,000 00		4,550
Mifflin,	4	246	28	8,224 00	85,100 00	2,160	47
Monroe,	4	287	160	40,300 00	553,000 00	3,150	11,500
Montgomery,	5	302	25	8,950 00	66,500 00	875	300
Montour,	3	226	4	500 00	7,600 00	108	12
Northampton,	3	308	4	3,481 00	29,900 00	750	
Northumberland,	8	231	66	24,935 00	345,910 00	2,564	5,930
Perry,	8	260	112	23,818 00	245,450 00	6,880	200
Philadelphia,	6	290	134	80,960 36	603,072 92	2,001	
Pike,	1		1	100 00	300 00	10	
Potter,	5	305	317	87,552 91	928,000 00		35,500
Schuylkill,	7	295	27	9,040 00	103,011 12	1,974	47
Snyder,	8	216	32	300 00	8,700 00	1,322	
Somerset,	10	243	20	1,375 00	18,000 00	443	77
Sullivan,	3	311	63	29,404 00	445,200 00	1,075	280
Susquehanna,	9	291	263	115,791 98	861,840 00	1,300	26,821
Tioga,	13	274	517	218,026 60	1,828,000 00		63,025
Union,	2	305	6	2 100 00	29 500 00	225	15
Warren,	8	300	359	176,684 22	1,850,000 00		66,200
Washington,	3	300	10	750 00	14,200 00	230	
Wayne,	8	284	62	64,833 00	728,000 00		18,700
Westmoreland,	7	281	9	1,935 00	31,000 00	530	
Wyoming,	6	300	88	48,200 00	335,100 00	1,940	12,250
York,	10	280	46	17,019 15	199,600 00	3,750	
Total,	394	275	5,035	\$2,115,843 52	\$20,419,197 36	223,778	199,930

TEXTILE INDUSTRIES.

The following article on the textile interests of Philadelphia for the year 1883 was prepared for the Bureau BY T. C. SEARCH, ESQ., OF THE FAIRMOUNT WORSTED MILLS, PHILADELPHIA.

Probably not since the panic years of 1872-73 can the history of our textile industries show such a variety of changes as have occurred during the past year; probably no year since that time has shown more gloomy periods and certainly none has had more disastrous changes.

The close of 1882 found our manufacturers well employed at profitable work, and general harmony prevailed throughout our industries. Our markets, both for raw and manufactured materials, had been more than ordinarily free from violent fluctuations; the margin of profit, though small, was constant, a condition of affairs which has grown to be welcomed by the entire trade as the one most conducive to wealth and happiness.

The advent of 1883 was destined to change all this. The effort to pass a new tariff bill unsettled the foundations of trade, and created general distrust throughout the country; prices drooped in sympathy with the general condition of affairs, and from the beginning of the year our manufacturers were vexed by circumstances which were more aggravating because the possibility and extent of their injurious effects were absolutely unknown.

The tariff bill of March 3 passed into law, and serious reductions had to be made in consequence; as soon as the amount of these reductions could be comprehended, they were met by fixing corresponding rebates to stocks on hand, and by the effort to purchase supplies at the correspondingly low rates. July 1, the date on which the new rate of duties went into effect, found the trade taking a hopeful view of the future, notwithstanding the heavy losses entailed by the reduction above described. Subsequently, many orders for woolen cloths were cancelled by the purchasers because of the change of duty which now enabled them to purchase at greater advantage, and the manufacturers were compelled to sustain another serious loss; one which they should never have been called upon to meet, since the goods had been fairly contracted for at a definite price, to be delivered at an appointed time, and should have been taken by the purchasers, no matter what tariff or other changes not affecting the quality of the goods might have occurred prior to their delivery. In this case the manufacturer, acting in good faith, was compelled to buy his supplies for filling his contracts so as to insure their prompt fulfillment without regard to possible tariff changes.

This practice of cancelling *bona fide* contracts has grown to be such an abuse that it would seem the time cannot be far distant when manufacturers must unite for mutual protection, and institute some means, to not only save themselves from loss, but to protect those of their customers who consider their contracts sacred and always abide by their issue.

The Carpet Trade.

Surface indications to those not specially interested in this branch of our industry would seem to show that the year had been a prosperous one to our carpet manufacturers. Several new mills have been erected, and the ability to turn out a larger product has marked the progress of several firms, but these changes were, in most instances, pre-determined and based upon the material prosperity which marked the trade at the close of 1882, and it was largely from the profits of preceding years that the cost of these improvements was paid.

The system of conducting business which is in vogue among the carpet manufacturers, to a very large extent, is no doubt one great cause of their prosperity. Their goods are very largely sold direct from the mills, and the consequent saving in commissions affords a fair margin of profit. Yet, notwithstanding this, some of our most prominent firms assert that the past year has been the worst in their experience.

For some years the manufacturers of this country have held the home market, but since July 1, 1883, the foreign manufacturers have shown their ability to enter our market and compete for a share of this trade.

We believe that in this competition our superiority will be maintained, but it is fortunate for the country and for the carpet manufacturer here that the latter had attained a strong position before the contest came.

In no other branch of textile manufacture, nor perhaps in any other industry, can Philadelphia take so much pride as in her carpet trade, certainly no other industry has so completely met the demands of the people; the best cultured tastes can always be satisfied, and there really remains no reason for importations of carpets as general floor coverings.

It is true that in the rug novelties there is yet a very considerable amount of importations, but even these have been steadily reduced by the continued efforts at their reproduction here, and we have to-day some very prosperous establishments engaged in this branch of the industry.

As previously stated, the year has been one of general improvement in the means employed and consequently in the ability to manufacture, and we cannot do other than chronicle a general advance of this great interest.

Hosiery.

No branch of our textile industry entered the year in a more depressed condition than this one. Competition, with the cheap labor of Germany, had long since driven our manufacturers into the production of that class of hosiery which is so largely dependent upon machinery, thus reducing the cost of labor to the lowest possible point, and, on the other hand, multiplying the production enormously; this rapidity of production soon stagnates the market, and for the time creates general dissatisfaction with ruinous prices, and balances of loss instead of profit.

Under such circumstances the condition of this trade was anything but prosperous, and had not the "Jersey" craze struck the country early in the

year and turned many of our mills to the production of that garment, the season would have been one of bitter disappointment. As it was, the knit-goods trade passed from a long period of depression into unwonted activity on account of the introduction of the fashionable Jersey.

This garment is produced almost wholly from fine worsted yarns, and when our knit-goods manufacturers, who use largely of woolen and cotton yarns in the production of their ordinary fabrics, entered the market for worsted, for a time the trade in these yarns was enormous, and prices advanced daily; on the other hand, makers of the woolen and cotton yarns suffered to a corresponding degree. Our knit-goods manufacturers, in many instances, doubled their force of workmen; night and day work became a matter of common occurrence. Contracts for yarns and contracts for goods were made for extraordinary amounts; many predicted ultimate loss to the parties interested; at last the climax was reached, and almost without warning the trade became as lifeless as it was animated before. The year closed upon this new industry without its revealing any signs of life; doubtless the "Jersey" has retired from the line of novelties to hereafter take its place as one of the standard productions of the trade, and in this capacity is probably destined to be of immense value to this interest and to the country.

Owing to the recent dark periods in this industry, we can chronicle but few additions to the hosiery mills during the past year as compared with the years preceding, but on the whole, the manufacturers are in much better shape than at the beginning of the year.

The Yarn-Spinning Industry.

This branch includes the spinning of three kinds—worsted, woolen, and cotton yarns—and of the three, the first is the only one that has shown any spirit during the year, the main cause of its activity being largely the cause of so much depression in the other two as before shown in the article on hosiery. The attention of our knitters was so largely drawn to the worsted Jersey fabrics that comparative neglect attended other fabrics for the time.

Philadelphia is now considered as much the home of the fine worsted yarn trade in this country as Bradford is its native place in England.

The systems in use here are practically those in use there. The industry has shown a wonderful activity during the year, and a very large increase in machinery has to be chronicled with a prospective addition that cannot yet be fully estimated, but is known to be of great importance.

The English system of spinning has hitherto been used, and is the best understood by American manufacturers. Its productions are largely consumed by the manufacturers of men's wear and ladies' cloakings and by the hosiery trade. Only the longest and strongest wools are used of the various grades extending from the very finest down to the coarser qualities.

The year has witnessed the introduction of some very fine worsted plants of French machinery—this is a new departure for our manufacturers, but

is a welcome one, as it diversifies our production by giving us a product from fine short wools that would otherwise pass into cheaper grades of goods. The yarns of this manufacture have their special adaptation and uses for which there is no satisfactory substitute. Such goods, representing mainly soft stuffs adapted to ladies' wear, have hitherto been imported, but, with the advent of these new and admirably equipped spinning plants, we confidently expect to see these line of goods produced in our city and vicinity, and thus a new trade seems within the possibility of the near future.

It appears certain that when the mills now approaching organization are fully completed that this industry will enter into a very sluggish existence, as the supply will be so large that for a very considerable time there must be an ability to produce more than the markets can consume, and more particularly so inasmuch as the hand-knitting zephyr trade which had grown to be of very considerable importance under the operation of the old tariff, has almost wholly reverted to Europe since the change with tariff cut off by one of its unequal thrusts, twenty-six cents per pound protection that had been formerly allowed on this article.

The Cotton Goods Trade.

The mills engaged in this line of goods have, during the year, shown varying degrees of activity. In the aggregate there has been a large number of looms idle, owing to the plethoric condition of the market and the unsatisfactory margin of profit.

The branches of this trade probably most notably effected have been ginghams, cottonades, and low grades of cloth. In the higher grades a better condition of affairs has existed, but the absence of a strong, healthy life was more or less apparent throughout the year.

Greater Variety of Products and Textile Schools now Needed.

The textile industry of Philadelphia is passing through a transition period.

For some years American manufacturers have been making nearly all the fabrics of lower grades that the country needed—few have been imported; and it is in these branches that over-production most frequently occurs. Some of our most progressive manufacturers have turned their attention to the better grades; and it is a significant fact that these are the ones who have been the most busy, in some instances running their mills day and night. On the other hand, wherever idle machinery was to be found, it was of that class which produced low grades of goods.

The South and West have made a strong bid for this latter class of trade, and in doing so they are only following the natural law of attempting to introduce in their home markets those trades requiring the least skill and most simple machinery. Thus there is an outside competition that has grown to be of wonderful strength, and which supplies a large market for cheap goods. Change of our labor direction is, therefore, urgently demanded, and whether or not Philadelphia shall pass successfully through

this transition depends upon two conditions : Ability to obtain skilled labor and proper protection. In the best fabrics the great element of cost is skilled labor. The foreign manufacturer has this at a low price, and he has it trained for him in schools where all his processes are thoroughly understood and systematically taught. Again, the cost of labor is so much higher here that we must have wise and proper protection afforded through our tariff laws. Unless the Philadelphia manufacturer can be placed upon an equal footing with his foreign competitor in both these particulars he wages an unequal contest. Whether or not he shall have a fair fight as regards the second depends upon Congress. That he shall not fail for want of the first depends largely upon himself; although we see no more reason that he should be called upon to bear all the expense of establishing schools for the training of his workmen than that those with whom he has to compete should bear the expense of the schools in which their labor is trained. Of course the textile manufacturers of Great Britain and Europe have contributed largely to the establishment of these schools, but the governments and municipalities in which they exist have also contributed, and in some cases more largely than the manufacturers themselves. The public good is too largely concerned to require that a school of instruction and practice in all that pertains to the textile arts should be established entirely by those, and those only, who are engaged in textile manufacture.

Without this transition can be made Philadelphia, will not expand in the line of textile manufacture in the coming decade as she has in the past. Many of our manufacturers in the past year made no improvements. They ran their mills with as little expense as possible for repairs or for new machinery. It has been a year of economizing, endeavoring in many cases not to make a loss and not always succeeding. Some have been forced to retire; others have voluntarily done so.

It is very likely that the textile interest has suffered no more than many others, and it is hard to believe that the same energy and pluck which established and built up an industry which now produces nearly \$100,000,000 worth of goods will not find a way out from under the depression which seems to have settled on many branches of it.

Social Condition.

Philadelphia holds a high rank as to the social condition of its working classes. Nowhere is good order and obedience to the laws of civilization more conspicuous than in our textile districts. If our city has marked merit in this respect, the reasons for it must exist, and they are very apparent.

Philadelphia is known throughout the world as the City of Homes, and the appellation is properly bestowed, for it is only here that one can see the laboring man in possession of a house which is, in almost every instance, solely inhabited by himself and family. This trait has grown so strong with the present generation that it is very difficult to induce one family to share the building occupied by another. The result of such developments,

after a long series of years, during which the individual home has come to be considered a consecrated spot, has been to strengthen the family tie, and, at the same time, to render possible home culture and proper development of a moral character rich in its constancy towards all that pertains to the making of good citizens. Their schools are well attended, and the grade of scholarship in them will compare very favorably with those of any other section of our city. The promotions to the advanced classes from these districts are as frequent as from any other, while the senior classes stand high and invite comparison.

We believe that in no other city can so large a proportion of its workingmen be found as actual owners of their own homes. A very large number of our one hundred and fifty thousand houses are owned by their occupants.

The building association has found here its most earnest advocates, and the strongest believers in its efficiency. Failures of these societies are rare indeed, which, of itself, speaks volumes for the judgment and intelligence of our working citizens, inasmuch as these organizations are, almost absolutely, managed and controlled by them. It is here the first principles of saving and economy are taught, and it is here that the first fruits of investment of hard earnings looking for a steady income in the near future are made apparent. Every man connected with these institutions, (and they are counted by thousands,) becomes a bulwark of strength to the community; to him his duties as a citizen are presented with a power and forcibility that only can be understood by those who own property within our corporate limits, and who feel that law, and order and enhanced security, must exist in a community which has so many representatives of tangible wealth.

Not a little of the great advancement before referred to, is directly due to the variety of labor needed and the great opportunity for its use, both made possible by our textile interests.

Baltimore gives employment in her shops and mills to 15 per cent. of her population; Boston, $14\frac{7}{8}$ per cent.; Brooklyn, $16\frac{1}{2}$ per cent.; New York, $17\frac{3}{4}$ per cent.; while Philadelphia furnishes such work to $20\frac{1}{4}$ per cent. of her people. We attribute the difference to our large textile manufacturing interests, which afford so many opportunities for the employment of the younger members of families, making them producers instead of consumers, and their not inconsiderable earnings, united with those of the head of the family, enable all to enjoy the solid comforts of a home, while, at the same time, the children are trained in habits of industry and in an occupation that shall afford them a livelihood in the future.

Instances there are without doubt of injury wrought in consequence of the variety of employment and the facility with which it is to be obtained. Children are sometimes found in mills that should be at school, but this is the exception rather than the rule, and as an objecting factor certainly is but a poor argument against the manifest blessings that are everywhere

apparent. Crowded tenements are a curse to humanity, and wherever they exist the tendency is to lower respect for mankind and for the laws that govern them. Crime and brutality necessarily increase, and the pages of local-government history are stained by the very persons that in other conditions of home-life would have constituted a great source of strength.

The factory system is certainly not an unmixed good, but taken in connection with such a thoroughly appreciated home-life as we see exemplified in this city, it certainly appears in its most favorable light; and since work is a necessary condition for civilized man, perhaps it cannot be obtained by the masses under conditions more elevating and enobling than are presented here.

The greatest blessing that a nation can secure is abundance of employment at remunerative wages for the entire number of its able-bodied citizens. Our Government has acted wisely in legislating so as to build up her industries, and this legislation should be continued so as to still further diversify her products and secure for her laboring people the ability to manufacture those articles in which labor forms the chief element of cost.

This city has been, and is yet, engaged in the production of those fabrics in the cost of which material enters more largely than labor. This policy has restricted the field for labor and rendered the demand for it more fluctuating.

It is comparatively easy, with the abundance of improved machinery, to flood the market with goods requiring but little labor in making them, and both manufacturers and laborers have, in many instances, suffered very greatly from over-production. Let labor receive the proper amount of protection while producing the best grades of fabrics, and this city could very soon add to its great diversity of products another potent factor in securing employment of a permanent character to a much larger per cent. of her population, and thus multiply those favorable features which now so distinguish her from some other great cities.

TEXTILE FABRICS.

TABLE showing the number of mills, production, &c., of Textile Fabrics in the several counties for the year ended December 31, 1883.
(Product market thus * is transferred from other class of goods in the same county.)

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Number of spindles.	Number of looms.	Number of yards manufactured.	Number of pieces.	Number of pounds.
Carpets.									
Delaware,	1	308	14	\$6,171 19		4	27,700		
Philadelphia,	137	288	10,462	3,826,950 22	25,887	5,271	29,463,353	Rugs, 1,023,180	
York,	1		4			3	344		
	139	298	10,480	\$3,833,121 41	25,887	5,278	29,491,337	1,023,180	
Mats, Matting, and Rugs.									
Delaware,	1	280	24	\$7,200 00		12		14,400	Rolls of matting, 400
Philadelphia,	3	260	138	16,677 54		82	52,560	94,631	
	4	270	162	\$23,877 54		94	52,560	109,031	400
Woolen Goods.									
Allegheny,	1	235	52	\$14,760 00	1,080	12	84,652		
Armstrong,	4	140	79	14,515 33	2,352	39	219,590		
Bedford,	4	287	36	5,380 00	948	19	11,231	3,452	
Berks,	3	227	74	16,900 68	1,764	39	22,000	Hose, 28,000	800
Bradford,	3	245	24	4,716 07	584	9	7,476	1,060	
Butler,	3	260	42	8,479 00	1,332	20	72,500		
Cambria,	3	276	238	72,805 50	4,544	82	348,986		
Centre,	2	225	19	4,500 00	600	6	19,000		
Chester,	2	225	384	2,981 35	384	12	9,392		
Chester,	1	300	15	1,400 00	220	6	15,000		
Clearfield,	1	200	7	4,350 03	536	12	2,150		
Clarion,	3	183	21	3,500 00	312	6	7,000		
Clinton,	1	260	9	750 00	560	6	2,600		
Columbia,	2	175	13	1,200 00	200	3	3,600		
Crawford,	2	250	14	4,219 00	302	9	1,520		
Cumberland,	3	278	23	800 00		2	3,000		
Dauphin,	1	300	5	108,899 76	9,020	273	763,209		
Delaware,	4	232	371	108,899 76	650	5	7,000		
Erie,	2	225	16	3,235 00	150	34	62,232	1,556	
Fayette,	1	180	4		2,042				
Franklin,	4	204	102	1,287 38	276				
Greene,	2	175	9	388 00		4	1,535		

Huntingdon,	1	150	5	...	...	240	5	2,605		
Indiana,	3	250	25	5,400 00	...	552	5			
Jefferson,	2	175	16	2,400 00	...	725	8	1,650		
Junata,	1	208	3	200 00	...	192	4	15,000		
Lackawanna,	1	250	7	800 00	...	240	2	3,775		
Lancaster,	4	206	31	3,622 00	...	1,222	20	6,500		
Luzerne,	2	280	12	2,060 00	...	1,508	7	20,000		
Lycoming,	5	252	118	26,600 00	...	4,078	38	120,000		
Monroe,	1	310	98	...	...	1,500	28	1,739,572		
Montgomery,	4	271	264	59,435 56	...	5,938	277	10,000		
Perry,	1	200	6	1,749,276 06	...	40,833	969	1,353,797	Blankets, 2,174,944	
Philadelphia,	21	264	4,719	...	...	144	2		Blankets, 3,819,344	
Potter,	1	104	...	...	...	144	3	1,200		
Schuylkill,	1	260	...	8,550 00	...	702	11	25,000		
Somerset,	3	201	21	800 00	...	240	2	5,000		
Sullivan,	1	200	4	954 00	...	824	12	17,500		
Susquehanna,	4	161	15	380 00	...	220	3	3,600		
Tioga,	1	300	6	11,112 98	...	2,120	15	33,133		
Union,	1	300	40	2,056 00	...	180	7	6,713		
Venango,	1	312	9	1 656 00	...	280	7	9,602		
Warren,	1	216	9	800 00	...	160	4	4,500		
Washington,	1	200	5	10,400 00	...	720	10	53,000		
Wayne,	1	296	45	3 040 84	...	600	12	14,950		
Westmoreland,	3	203	19	6,475 10	...	1,624	23	10,047		
York,	6	215	44	...	...	...	...	...
	121	233	6,714	\$2,171,865 64	92,053	2,077		5,121,287	3,853,652	2,175,744
Cotton and Woollen Goods.										
Adams,	1	234	4	\$600 00	180	3		2,300		
Berks,	2	263	116	20,019 58	1,008	46		125,000		13,000
Chester,	2	304	70	22,670 00	1,520	40		30,000		14,200
Dauphin,	1	300	7	1,800 00	216	9		6,800		559,556
Delaware,	8	299	866	294,913 00	34,830	819		6,306,045		
Huntingdon,	1	300	7	...	234	6		195,000		
Lehigh,	1	200	56	7,000 00	...	9		1,073 891		
Montgomery,	2	263	165	39,197 85	3,496	183		559,017		1,227,556
Philadelphia,	28	273	6,005	1,897,003 21	60,172	8,290		49,829,842		
	46	271	7,296	\$2,283,133 14	101,656	9,405		57,373,878	754 017	1,814,112
Cotton Goods.										
Allegheny,	2	293	657	\$138,751 79	21,364	503		2,200,000		1,158,729
Berks,	1	308	240	49,000 00	15,800	300		...		
Chester,	2	301	108	36,881 00	2,952	110		1,100,000		
Dauphin,	1	307	224	45,000 00	8,320	260		780,000		
Delaware,	14	240	2,767	794,335 23	142,508	2,954		18,117,417		179,178
Lancaster,	4	305	796	340,836 69	46,488	745		6,233,096		4,369,459
Montgomery,	2	259	140	24,064 00	15,336	50		11,457,076		478,573
Northampton,	2	300	261	53,000 00	8 000	362		1,166,928		
Philadelphia,	25	274	3,993	959,020 45	78,488	5,068		2,036,000		8,827,569
	53	257	9,186	\$2,440,889 21	339,256	10,377		18,689,381	235,650	15,013,508
								53,696,802	7,833,004	

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TEXTILE FABRICS—Continued.

COUNTY.	Number of establish- ments.	Average number of days in operation.	Total number of per- sons employed.	Total amount paid in wages during the year.	Number of spindles.	Number of looms.	Number of yards manu- factured.	Number of pieces.	Number of pounds.
Shawls.									
Chester,	3	248	57	\$80,580 00	...	37	...	*50,000 93,264	
Philadelphia,	3	248	57	\$80,580 00	...	37	...	143,264	
Shoddy.									
Chester,	1	300	19	\$6,000 00	...	...	...	...	30,000
Delaware,	2	285	62	24,680 00	...	...	...	...	1,012,500
Philadelphia,	4	297	78	34,447 72	720	...	...	...	1,425,796
	7	294	159	\$65,127 72	720	...	...	...	2,468,296
Silk Goods.									
Philadelphia,	5	297	994	\$491,260 00	29,348	220	501,000	3,230	322,000
Wayne,	1	300	300	85,000 00	...	...	100,000	...	125,000
	6	298	1,294	\$276,260 00	29,348	220	601,000	3,230	447,000
Turkish Towels.									
Philadelphia,	2	278	56	\$21,940 34	...	40	325,600	120,000	
Upholstry Goods.									
Philadelphia,	6	302	344	\$106,200 00	...	154	*85,000 20,000 Curtains, *17,500	730,000	\$55,000 00

TEXTILE FABRICS—Continued.

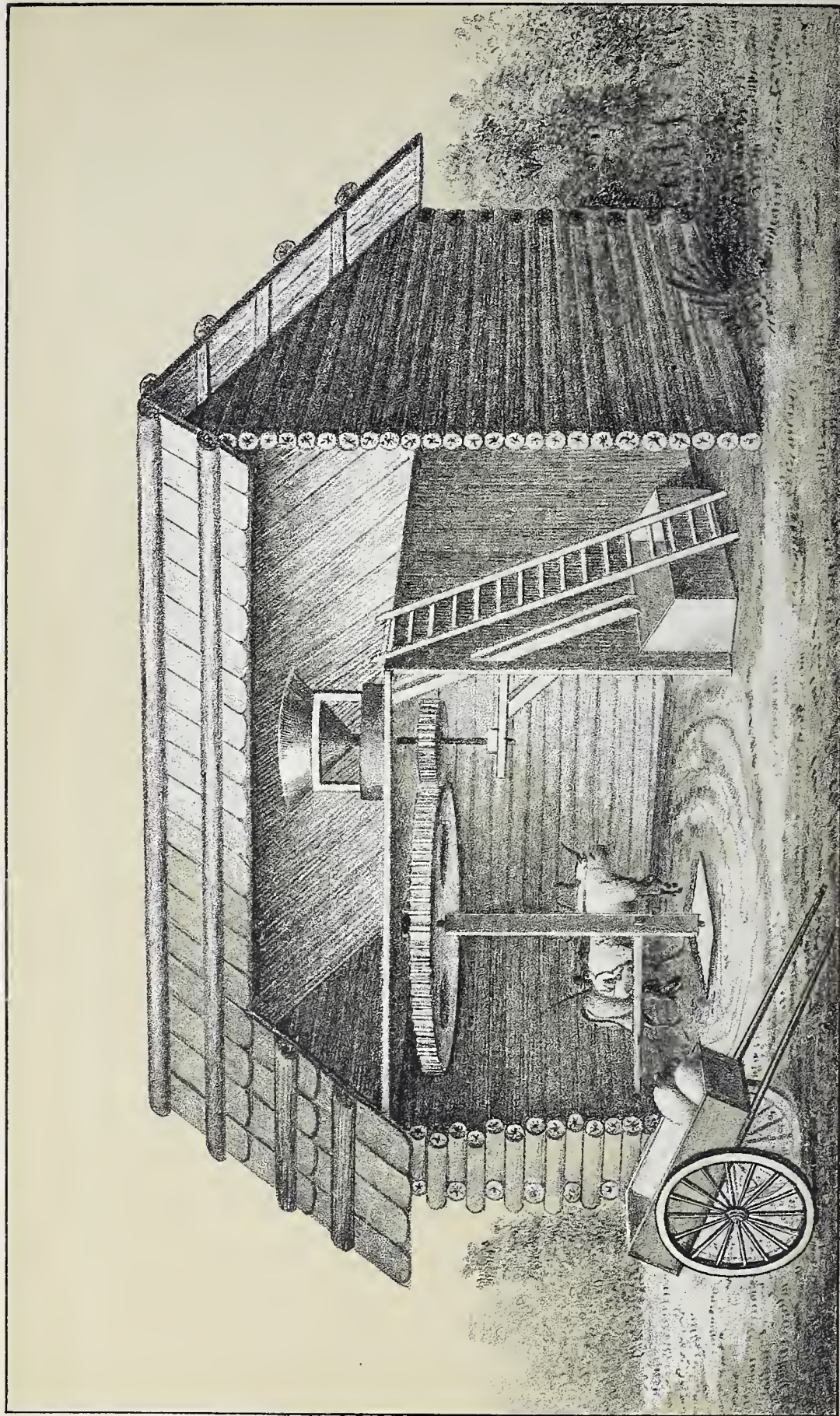
COUNTY.		Number of establish- ments.	Average number of days in operation.	Total number of per- sons employed.	Total amount paid in wages during the year.	Value of product.	Number of yards manu- factured.	Number of pieces.	Number of pounds.
Clothing.									
	Philadelphia,	24	293	4,155	\$1,393,358 97	\$5,657,640 34	. . . . .	60,000	
Corsets.									
	Philadelphia,	2	300	11	\$2,980 00	\$5,806 35			
Dress Trimmings, Gimp, Braid, &c.									
	Philadelphia,	15	286	2,766	\$943,238 61	\$2,651,000 00	. . . . .		591,098
Dyeing, Finishing, &c.									
	Philadelphia,	29	270	1,021	\$470,498 54	\$282,064 90	. . . . .		9,768,200
Hats and Caps.									
	Allegheny,	1	300	5	\$1,000 00	\$4,000 00			
	Berks,	13	269	738	207,550 16	175,400 00		3,208,673	
	Lancaster,	4	234	110	29,140 00	132,000 00			
	Philadelphia,	26	244	1,424	674,161 05	604,724 42		578,572	
		44	262	2,277	\$911,851 21	\$916,124 42	. . . . .	3,872,245	
Neckwear.									
	Philadelphia,	5	292	190	\$47,650 18	\$298,000 00			
Shirts.									
	Allegheny,	1	300	2	\$1,600 00	\$164,083 93			
	Montgomery,	2	308	243	66,820 18	1,493,000 00		17,300	
	Philadelphia,	21	292	1,705	493,028 16		. . . . .	
		24	300	1,950	\$561,448 34	\$1,567,683 93		17,300	
Window Shades.									
	Philadelphia,	4	304	102	\$38,511 58	\$184,300 00			

TEXTILE FABRICS—RECAPITULATION.

INDUSTRIES.	Number of establishments.	Number of persons employed.	Total amount paid in wages during the year.	Number of spindles.	Number of looms.	Number of yards.	Number of pieces counted for.	Number of pounds.	Value of product not otherwise accounted for.
Carpets,	139	10,480	\$3,833,121 41	25,887	5,228	29,491,337	1,023,180	..	Rolls of matting, 400.
Mats, matting, and rugs,	4	162	23,877 54	..	94	52,560	109,081	2,175 744	..
Woolen goods,	121	6,714	2,171,865 64	92,053	2,077	5,121,387	3,853,652	..	..
Cotton and woolen goods,	46	7,286	2,283,133 14	101,656	9,405	57,373,878	754,017	1,814,112	..
Cotton goods,	53	9,186	2,440,889 21	339,256	10,377	55,690,812	7,383,004	15,013,508	..
Yarns,	82	4,471	1,383,747 14	161,185	212	524,138	..	27,766,695	..
Hosiery and knit goods,	92	9,646	2,448,975 54	13,236	855	..	58,654,072	..	..
Carders and fullers,	10	34	3,663 00	892	9	994	..	79,231	..
Coverlets,	8	242	72,173 11	..	54	3,450	280,825	..	..
Pelt goods,	3	211	96,556 54	2,364	30	12,200	12,200	150,200	..
Jeans,	4	651	172,933 07	12,676	534	2,753,637	93,600	5,800	..
Lace and lace goods,	7	715	118,851 87	..	116	..	1,256,400	..	\$295,000 00
Print goods,	7	430	131,180 00	9,500	200	17,531 344	..	..	..
Reps and terries,	5	330	113,406 08	..	207	387,300	2,000	10,885	..
Shawls,	3	57	80,580 00	..	37	..	143,264	..	..
Shoddy,	7	139	65,127 72	720	..	..	..	2,468,296	..
Silk goods,	6	1,254	276,260 00	29,348	220	601,000	3,230	447,000	..
Turkish towels,	2	56	21,940 34	..	40	325,000	120,000	..	..
Upholstery goods,	6	344	106,260 00	..	154	105,000	730,000	..	{ Curtains, yds., 17,500
Clothing,	24	4,155	1,393,358 97	..	..	..	60,000	..	{ 55,000
Corsets,	2	11	2,880 00	..	..	..	..	..	5,657,640 34
Dress trimmings, braid, &c.,	15	2,766	943,238 61	..	..	..	..	591,088	5,806 35
Dyeing, finishing, &c.,	29	1,021	470,498 54	..	..	..	..	9,768,200	2,631,000 00
Hats and caps,	44	2,277	911,851 21	..	..	..	3,872,245	..	282,964 90
Shirts,	24	1,950	561,448 34	..	..	..	17,300	..	916,124 42
Neckwear,	5	180	47,650 18	..	..	..	..	..	1,567,683 93
Window shades,	4	102	35,511 58	..	..	..	..	..	298,000 00
	752	64,958	\$20,273,918 78	738,773	29,849	169,378,437	78,378,070	60,200,769	\$11,913,519 94

The following are the number of machines used in textile manufacture not included in the above tables:

Cards,	1,268	2 888
Frames—Spinning, spooling, winding, &c.,	2,121	189
Reels and twistors,	125	425
Machines—Knitting, hosiery, underwear, etc., . . . . .	..	3,016
Warp-mills, . . . . .	..	..
Sewing-machines, . . . . .	..	..
All other frames and machines, . . . . .	..	..



AN OLD MILL
of JAMES McFEELY, Seven Mile Prairie, Ohio.

FLOUR-MILLING INDUSTRY.

The following article on the Flour-Milling Industry of Pennsylvania was prepared for the Bureau by THOMAS McFEELY, PHILADELPHIA.

The flour-milling industry of Pennsylvania, at a very early date in the history of the State, took rank as one of the foremost manufacturing interests, and in that one particular placed our State second in the Union; although the statistics are so incomplete that we cannot give any correct idea of how much flour was annually produced by the mills.

After the days of Oliver Evans, the manufacturing of flour continued for many years without any marked changes or improvements, and consisted in general of the following-described machinery and process:

The wheat from the garners was taken to a rolling screen, made with a woven wire cylinder revolving slowly, the wheat passing in at one end and out at the other, the dust, dirt, &c., passing through the wire. This, at a later date, was followed by a smutter or scourer, which was generally constructed with a perforated steel or iron cylinder, inside of which were revolving arms or beaters that scoured the wheat and broke the smut grains, and the dust and scourings were removed by a fan connected with the machine. From this the wheat passed to a French burr mill-stone and was ground fine; then passed through revolving reels, covered with silk cloth, and the finest and whitest of the flour taken out, while the coarse part often was sent off with the bran or hull of the wheat for feed. In some cases this coarse part was separated from the bran. It was then called shorts or middlings, and was again ground and bolted and made a low-grade or what was generally called superfine flour. This system continued general throughout the State until about 1860. Brush-machines or bran-dusters came into use in a few of the larger or better class of mills. These machines were constructed somewhat like the smut-machines, using revolving brushes inside the cylinders, the former to more thoroughly clean the wheat and take the beard or fuzz off the blossom end of the grain, and the latter to take off the fine particles of flour that the mill-stone left adhering to the bran.

Following the introduction of these machines came a revolution in the entire process of manufacturing flour, while the credit is properly due to one of our Lancaster county millers for one of the most important of these improvements, he, as I am credibly informed, having constructed and used successfully for a number of years what is now universally known as the middlings purifier. These machines are used to cleanse or purify the before-mentioned coarse particles, (middlings,) and they are then reground and bolted, and instead of making the so-called superfine or low-grade flour they make a high grade or what is now generally called patent flour. Notwithstanding that this machine was used in this mill successfully, the

neighboring mills did not adopt them, and it was left for the north-western mills to carry out and perfect these improvements. In 1870 and 1871, what was known and recognized as the new process was adopted by a few of the Minnesota mills, and from this it rapidly spread throughout the Union, and in a few years all the more progressive of the millers had adopted it. The process or system consisted of the same machinery used in the old process or old style milling, "now generally termed the low-grinding system;" and in addition the middlings purifiers were used. The rapid introduction of these machines had the tendency to stimulate invention to such an extent that in 1880 hundreds of patents had been issued for improvements in this class of machines, and there were upwards of forty different machines on the market.

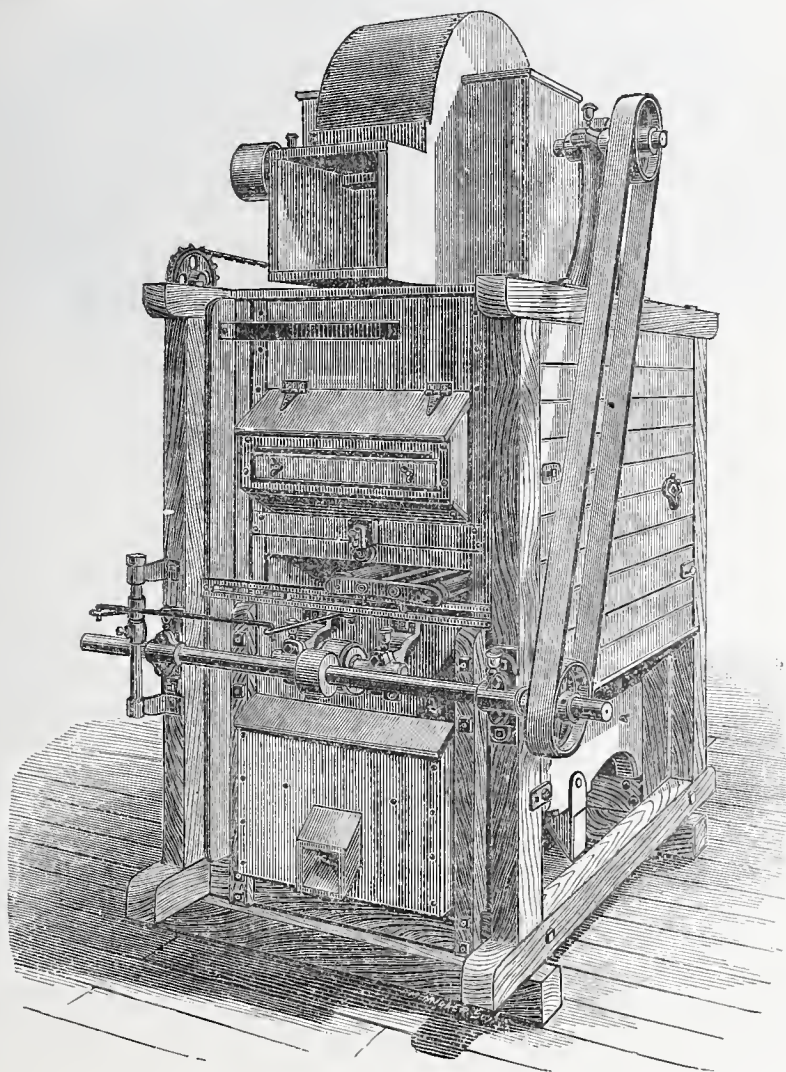
By the use of the purifier it was found that a large proportion of the middlings that formerly went into the low-grade flour or feed could be made into a high grade or patent flour, that was considered far better than the white starchy flour that was made from the first grinding of the wheat. Then followed a change in the mode of grinding. A new diamond machine was invented, and by its use the face and furrows of the mill-stone were dressed and planed perfectly true and smooth; and instead of grinding the wheat fine, so as to make a large quantity of flour at the first reduction or grinding, the stone were set farther apart and what is known as high grinding adopted. By this method a much larger quantity of middlings or semolino was obtained, and it being coarser it was much easier to cleanse or purify, and a much greater percentage as well as a better quality of high-grade or patent flour was obtained.

About 1877 some of our millers began experimenting with rolls on what was then known as the Hungarian or gradual-reduction system, and what is now termed the roller system; and this is rapidly taking the place of all other systems of milling among our more progressive millers, and is used in about three thousand of the best mills in the United States. In the roller process the wheat is first thoroughly cleaned. It is then passed between a pair of grooved or corrugated rolls. These are generally made of chilled-iron. These crush or split the grains. They are then passed through a reel covered with wire cloth and all the finer particles separated from the coarse. The latter is then passed between another pair of grooved rolls. This is called the second reduction, and the rolls have more or finer corrugations than the preceding pair, and are set a little nearer each other.

The product from these rolls is again passed through a reel and a separation made as before. The coarser portion is again taken to third pair of rolls with still finer corrugations and set still nearer together, and so on the process continues to the sixth or seventh pair of rolls, or until the flour and middlings is nearly all removed from the bran, and it is then finished by passing from the reel following the last pair of rolls to the bran-duster. Returning to the finer particles that have been separated by the reel following each pair of rolls or reduction, as the miller terms it, this product

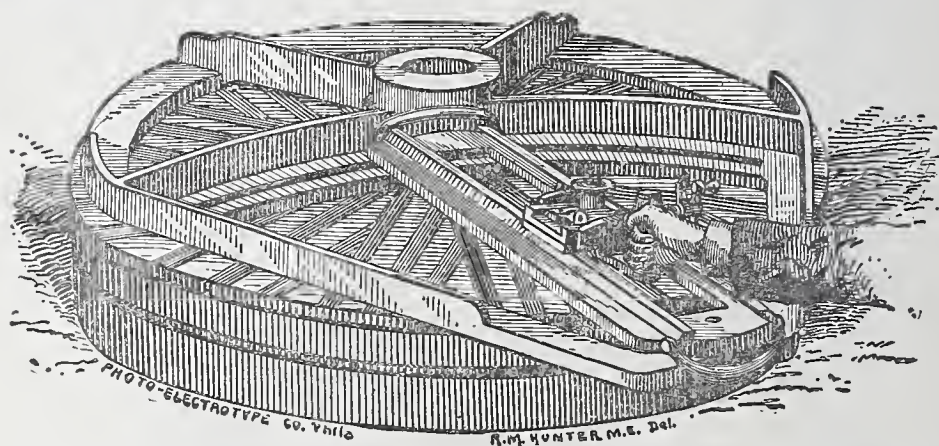
is sent to what is called a scalping-reel, which separates it into three parts, the coarser of which is passed between what is called the sizing-rolls, "which are usually smooth chilled-iron or porcelain." This is again put through a wire or silk-covered reel, and the coarser part sent to the last reduction-roll or bran-duster, while the finer portion is returned again to the scalping-reel.

The second or medium product from this reel is sent to what is termed the first or coarse purifier; the finest part is sent to the flouring reels proper, and all the finest that passes through the silk goes to the bakers or family flour. The coarser part, or middlings, is now sent to a dusting and grading reel covered with silks to take out the fine flour that may still adhere to the middlings, and to separate the latter into the proper grades for the purifiers. After purifying, the middlings are sent to porcelain-grooved chilled-iron rolls, or to a smoothly dressed mill-stone, where it is ground or reduced to flour. It is then sent to silk-covered reels, and any specks or impurities remaining are separated from it, and the product is the high-grade or patent flour.



In describing these different processes of milling, I have mentioned three of the newest and most important machines used in the improvement of the system, viz: The purifier, the diamond stone dressing-machine, and the rolls, or, as they are generally called, roller-mills.

The purifiers are usually made with a sieve connected with a rapidly revolving shaft and eccentrics that give the sieve a reciprocating motion. The middlings are fed to the sieve, and as it passes over it a current of air, supplied by a rapidly revolving fan, is forced or drawn through the sieve, and this carries off the impurities and leaves the middlings comparatively pure. The process is much the same as the wind-mill seed-cleaning machines commonly used by farmers for cleaning and separating grain, except that the dust and fuzz from the purifier is blown into a dust-room or dust-catcher, and is used for feed or the better portion put into the low-grade flour.



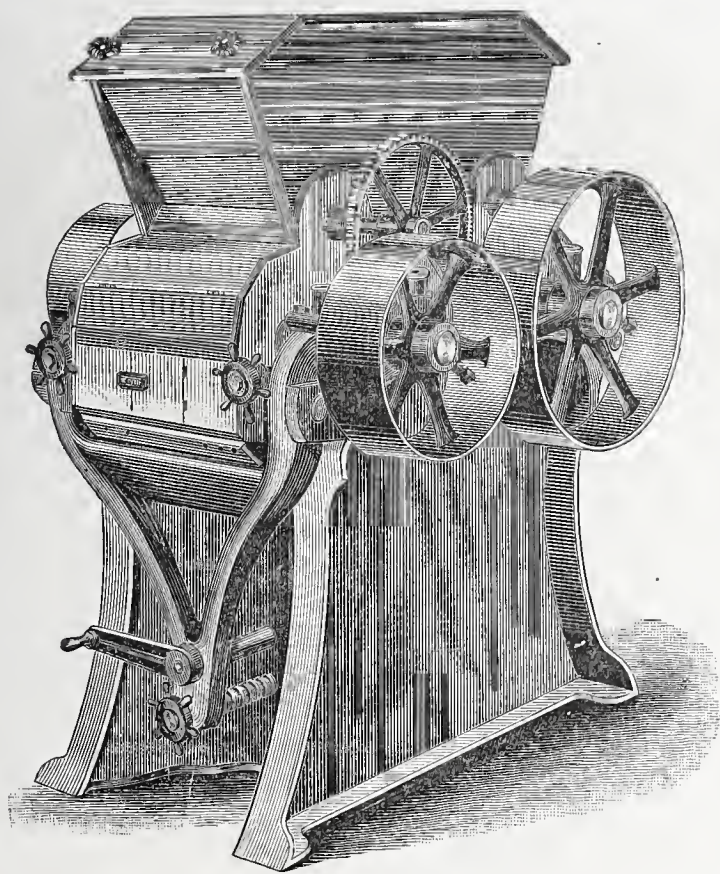
The diamond dressing-machine is used in the place of the old-time pick or stone hammer, and instead of leaving the mill-stone rough, it gives it a true smooth surface, which granulates more evenly than the rough unevenly dressed stone, and when the stone is used for grinding wheat it cuts the bran much less, thus insuring a whiter and more uniform flour. These machines are hand planers, and the tool or cutter used is carbon or black diamond.

Some idea of the difficulty of getting a machine accurate enough to do this work can be formed when it is known that of over fifty machines that have been placed on the market only one proved satisfactory to the Minneapolis millers, and was adopted by all the mills in that city in 1878-9, and is now used by most of the merchant mills in our State.

The roller-mills were originally a Swiss or Hungarian invention, and have been used by the larger mills in Buda Pesth, Hungary, for a number of years. But it is only since they have been adopted by the millers of the United States that they have reached anything like a perfect machine.

The object to be obtained in a roller-mill is simply to get one or more pairs of rolls in a frame. With a driving device to revolve each of the rolls of a pair towards the other at the top or upper side at varying differential

speeds, and to have them at all times true, round and perfectly parallel. They must also have an adjusting device by which they can be kept the proper distance apart, and a device for allowing them to separate quickly, in case of a nail or any hard substance getting between them. For this purpose a spring is used, and in nearly all machines a spring is placed against the bearings at each end of the roll. They also have a device for adjusting at each end. To the practical mechanic the inefficiency of these devices will be at once apparent. As it would be almost an impossibility to get two springs set and controlled by lock or jam-nuts to have the same uniform resistance; and if that was possible, it would require a skillful mechanic to adjust the rolls at each end separately and get them exactly the same distance apart, and keep them so when in operation. But, happily, these difficulties have been overcome, and the machines so improved that any ordinary miller can operate them.



The machine shown in illustration is a double-roller mill, that is, two pairs of rollers in one frame. It is a model of simplicity, and a glance will suffice to show the forked lever that carries the movable or adjusting roll and that only one device or screw and one movement is required to adjust the rolls to a degree of nicety that is utterly impossible with rolls having separate bearings, springs, and adjusting devices. It will also be

noticed that the bearings in the machine, if made in line, must remain so, thus always insuring a cool running journal and a great saving of power. The bearings of the back roll being in one casting, with a heavy connecting bar, keep them in line the same as the bearings of the adjustable roll.

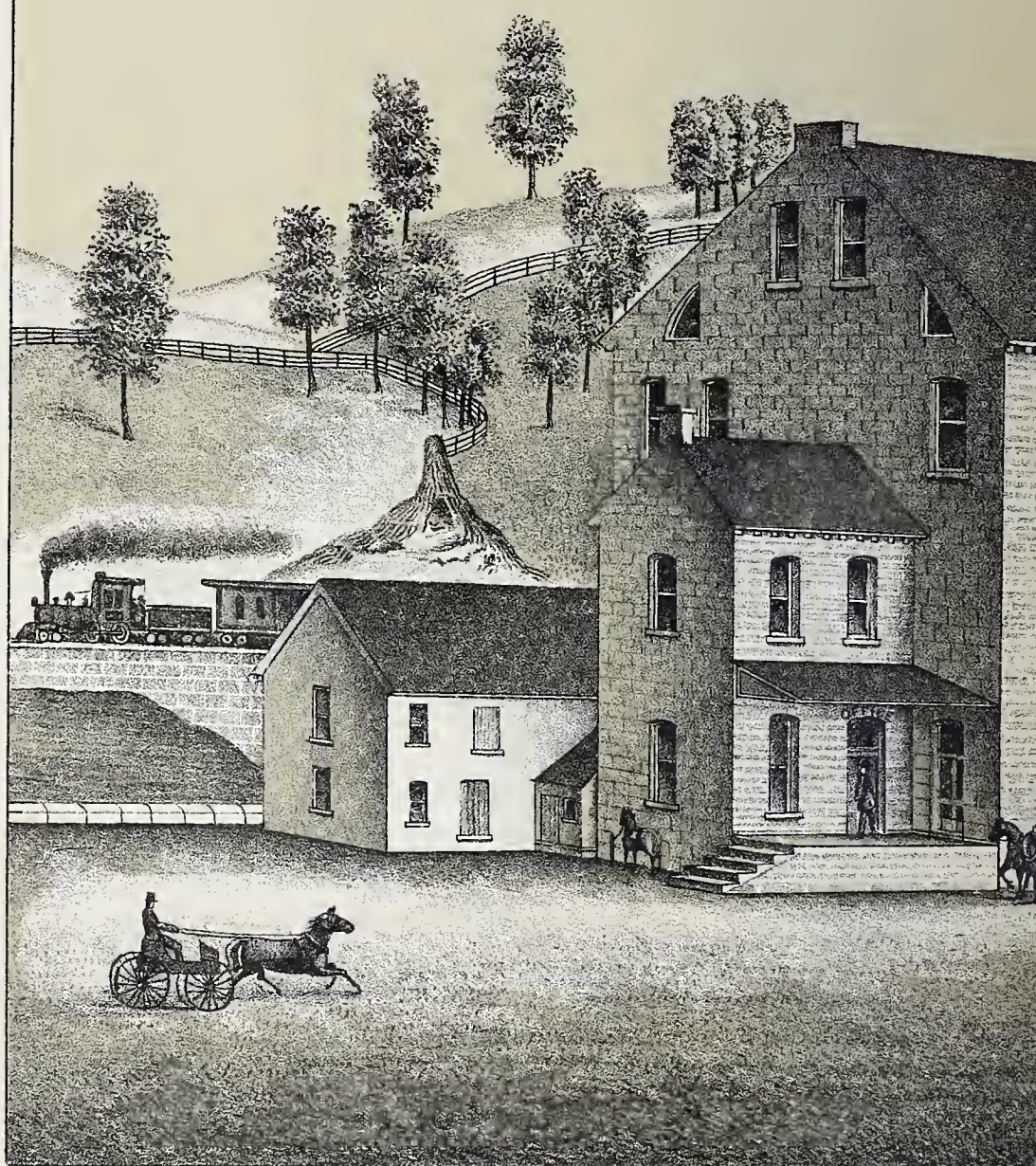
In the foregoing I have given a short description of three systems of milling that have been in use in our State during the past century, and in nearly, if not quite, all the mills the motive power was either water or steam. The oldest mill now running in the State is supposed to be that of A. J. Rice, near Jenkintown. This mill was built some time prior to 1715, and has been in continual operation as a flouring mill ever since, and in the summer of 1883 was remodeled to the roller system.

In the absence of any information in regard to the more primitive systems of milling formerly in use in our State, I will give a short description and illustration of the mill where I received my first ideas of milling. This mill was built by my father about the year 1838 in the (at that time) wilderness of Darke county, Ohio. It was situated at what was known as Seven-Mile prairie, and, when located, was supposed to be seven miles from Fort Recovery, the scene of General St. Clair's defeat by the Indians.

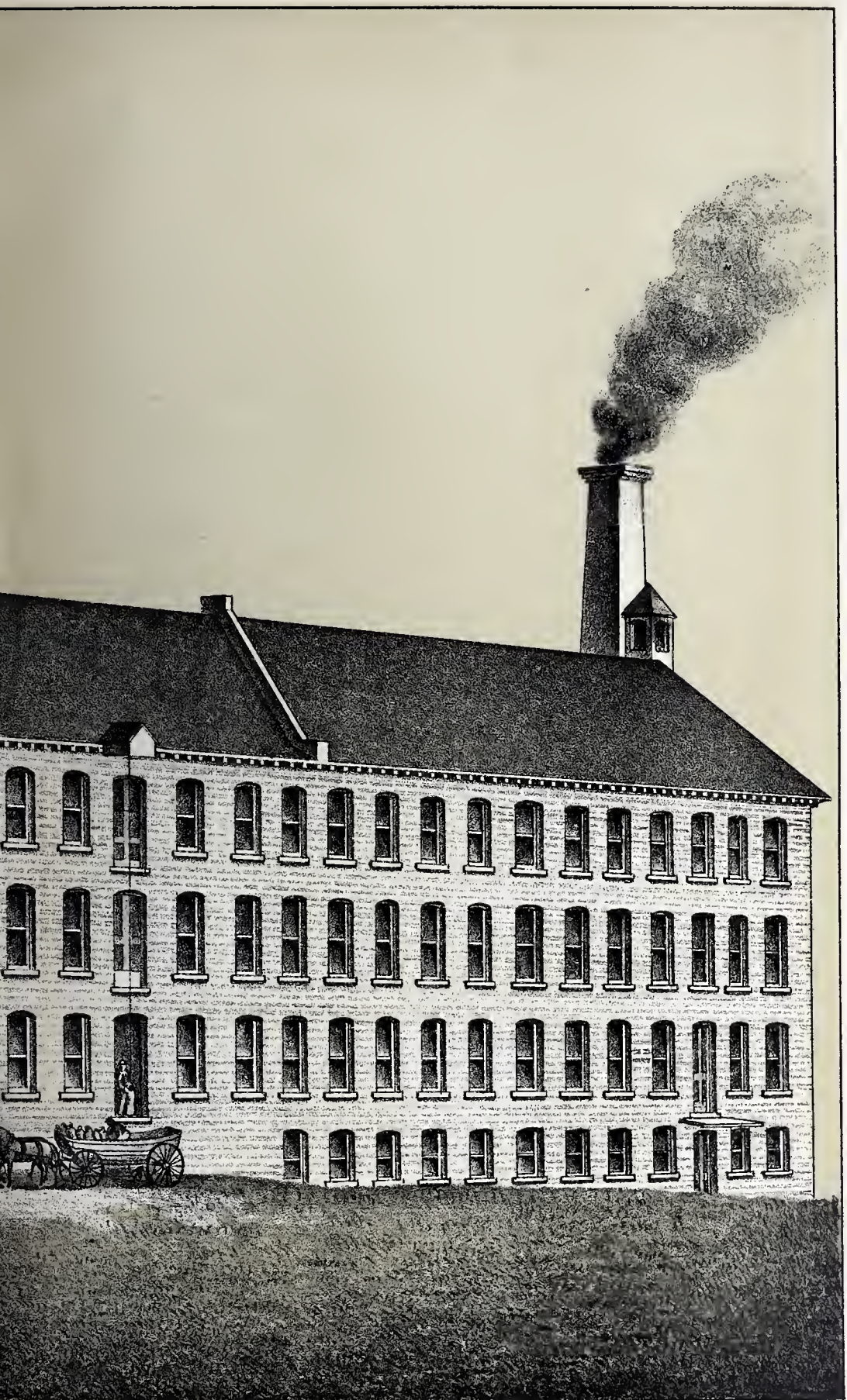
The fort was so named from the fact that it was retaken by General Anthony Wayne, known in history as Mad Anthony Wayne. At the time of the building of this mill there were no settlers within two miles of it, and to the east and west was an unbroken forest for from ten to fifteen miles, and often at night in winter the hungry wolves would come, and, standing on their hind feet, look into the cabin window to see what the miller and his family had for supper.

The mill was a one-story round-log building, without any floor other than the earthen one, and on a raised platform in one corner was a mill-stone of the kind known as nigger-head or corn-crackers. This stone was about two feet in diameter, and was driven by a pinion gearing into a large wheel that was built around a white oak shaft that stood upright in the center of the mill. Through this shaft passed a lever to which were hitched the horses or oxen, as the case might be, to supply the motive power, with the addition of a box placed below the stone to catch the ground grain, and a ladder to enable the miller to carry the grist up to the hopper. The machinery was complete, and the system was carried out by putting the grain in the hopper, starting the oxen and persuading them to keep going until the grist had passed through the stone and into the box below. If it was the miller's grain, either corn or wheat, rye or buckwheat, it was taken to the cabin near by, and my mother would sift or bolt it through a hand-sieve, and the finer part used to make bread. My aged mother has said to me in the past year that the bread she made from that flour was as good and white as any we now get from our new process or roller-flour.

Some years after the erection of this mill an enterprising neighbor put up a bolting-reel at Fort Recovery, and the settlers would bring their grist of wheat, rye, or buckwheat to the mill, get it ground, put it on their



GEO. LEVAN AND SONS. F



R MILLS. LANCASTER TP.

horses, take it to Fort Recovery, and there feed it into the bolt with one hand while they would turn the reel with the other. What toll the proprietor of the bolt exacted I am unable to say; but the fact that some years later he was the owner of a more modern flouring mill would indicate that the business had been profitable.

From this picture we turn to the illustration of one of our modern mills, that of George Levan & Sons, Lancaster, Pennsylvania. This is one of the finest mills in the State, and has within a few years been operated under what is known now as the old style milling (the first mentioned in this article) and the new process, the mill having been entirely remodeled inside and refitted with new machinery in 1880, and again changed to the roller process in the present year, 1884. The gentlemen comprising the firm are among the most enterprising millers of the State, and in improving their mill they have taken great pains and care to thoroughly post themselves as to the best system and the best machinery for carrying it out and have made their purchases accordingly. Their mills are well worth a visit from any one interested in machinery or the manufacture of flour. The reputation of their flour has always been good.

Mr. Landis Levan of this firm is the Secretary of our State Millers' Association, which has the largest membership and its meetings are more largely attended than are those of any other State association. This is in a great measure due to the efficient and unremitting work of the secretary and president. Mr. B. F. Eisenberg, of the firm of Henry & Co., of Huntingdon, has held the latter office for several years, and is also a thorough practical miller.

Until the past few years the flour from our mills had a world-wide reputation that was second to none. But the rapid improvement of the western and north-western mills for a time placed them in advance. Our millers being more conservative, were slow to adopt the improved methods, but finding the flour from the West gradually encroaching on their home trade, a few of the leading mills were remodelled or new ones built on the roller system, and their success has demonstrated the fact that as good flour can be produced from our wheat as that from any State in the Union, if properly manufactured. I am satisfied, from personal observation, that our wheat, for the past ten years, has averaged far better and more uniform than that of any of the western or north-western States, and we especially have far less of damaged wheat, there being two good reasons for this: First, We do not have as many storms during harvest time, and when it does rain, the land, being generally rolling, soon dries. Second, The farms are smaller, and our farmers are well supplied with barns, so that they have every facility for taking care of their crops.

Our mill owners are now fully awakened to the fact that they must improve their mills or lose all their trade, and the changing of their mills to the roller system is rapidly going on, so that in a year or two, at farthest, we may expect the bulk of our flour to be again equal to any in the market.

The facts that we have few very large mills like those at St. Louis and Minneapolis, and the price of the offal being about three times here what they get in the West, and the supply of home-grown wheat being nearly equal to the demand of the mills, make the outlook exceedingly bright for those that have their mills fitted up to make a brand of flour that will secure to them the local trade of their neighborhood and give them a chance to compete in the markets, so that they may be able to sell their surplus at a profit. Our mill buildings are generally substantial stone and brick structures, and are well adapted for the placing of the new machinery necessary to place them on the roller system.

FLOUR AND GRIST-MILLS.

TABLE showing the number of Flour and Grist Mills, number of bushels of grain ground, number of barrels of flour manufactured, number of employees, etc., in the several counties of Pennsylvania, compiled from returns made to the Bureau for the year ending December 31, 1883.

COUNTY.	Number of mills.	Number of runs of stones.	Number of sets of rolls.	POWER USED.			Average daily capacity in bushels.	NUMBER OF BUSHELS GROUND AND CHOPPED.		Amount of flour manu- factured in barrels.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages.	Proportion of grain im- ported from other States and included in the fore- going—bushels.
				POWER USED.				Wheat.	All other grain.					
				Number of mills using water- power.	Steam-power.	Steam and water.								
Adams,	39	117	5	34	5	87	139,174	296,853	23,615	257	59	\$4,638 00	10,000	
Allegheny,	37	91	64	4	21	192	886,150	278,484	178,410	201	118	64,499 00	410,560	
Armstrong,	36	102	17	11	13	130	317,058	303,350	62,330	218	74	12,917 24	37,062	
Beaver,	16	44	13	8	5	3	134,090	136,980	25,898	215	35	6,939 80	57,916	
Bedford,	45	118	6	36	3	61	284,793	213,368	47,937	255	66	8,398 00	26,386	
Berks,	127	397	..	92	5	30	452,846	911,748	85,132	197	193	32,137 05	36,717	
Blair,	38	103	..	30	3	5	238,921	293,500	42,979	261	72	13,868 80	113,068	
Bradford,	51	148	17	28	11	12	283,262	835,685	150,806	227	111	32,869 53	174,704	
Bucks,	82	229	36	56	4	22	734,456	869,918	47,116	300	181	45,285 00	312,621	
Butler,	32	103	21	12	10	10	230,512	317,273	47,116	217	91	15,585 00	62,513	
Camoria,	18	46	18	15	3	..	88,998	104,906	16,821	246	30	9,135 00	35,100	
Cameron,	2	11	13	1	..	2	30,000	82,500	6,000	300	10	4,600 00	112,500	
Carbon,	12	31	..	11	1	45	17,168	60,657	3,424	214	18	4,636 56	10,380	
Centre,	36	97	17	28	3	5	262,507	299,579	51,911	260	64	14,174 00	109,380	
Chester,	126	285	32	109	3	14	560,462	890,438	116,308	257	302	32,398 02	48,875	
Clarion,	32	93	5	19	5	8	189,568	186,092	37,803	236	52	10,415 22	40,940	
Clearfield,	28	80	..	19	1	8	122,913	207,191	24,740	244	42	10,470 64	65,496	
Clinton,	19	60	5	17	1	1	166,162	193,655	32,780	267	38	8,732 50	79,656	
Columbia,	37	128	3	34	..	3	137,122	349,146	28,070	279	49	9,256 00	36,564	
Crawford,	31	95	7	18	3	10	274,960	582,610	55,956	272	71	24,094 00	303,966	
Cumberland,	46	151	17	45	1	..	356,984	284,013	74,351	270	86	16,104 50	619	
Dauphin,	38	117	41	30	..	7	1,112,018	197,177	217,069	254	93	24,898 00	81,690	
Delaware,	19	43	15	14	3	2	102,431	258,038	20,650	260	39	12,136 00	37,600	
Elk,	7	14	..	5	1	1	6,000	43,500	1,200	163	7	2,450 00	1,346,978	
Erie,	36	95	60	16	13	7	810,317	988,516	156,127	282	131	67,823 61	4,728	
Fayette,	37	94	3	13	15	9	291,255	157,670	56,855	242	72	22,615 84	5,166	
Forest,	2	5	..	..	..	..	4 601	10,400	1,120	130	3	175 00	..
Franklin,	46	115	3	42	2	2	370,882	273,884	73,166	280	75	11,425 00	..	
Fulton,	22	57	4	20	..	..	59,754	57,351	11,951	261	24	1,044 56	..
Greene,	22	52	..	3	10	9	140,760	69,500	27,972	212	35	3,470 00	..	
Huntingdon,	42	128	12	37	3	1	357,664	269,767	71,657	248	75	16,837 00	80,164	
Indiana,	42	107	29	22	12	7	332,750	239,480	66,612	210	71	9,580 00	10,850	
Jefferson,	21	53	1	17	1	3	73,864	135,503	15,230	222	29	4,047 19	30,972	

FLOUR AND GRIST-MILLS—Continued.

COUNTY.	Number of mills.	Number of runs of stones.	Number of sets of rolls.	POWER USED.			Average daily capacity in bushels.	NUMBER OF BUSHELS GROUND AND CHOPPED.		Amount of flour manufac- tured in barrels.	Average number of days in operation.	Total number of persons em- ployed.	Total amount paid in wages.	Proportion of grain imported from other States and in- cluded in the foregoing— bushels.
				Number of mills using water.	Steam power.	Steam and water.		Wheat.	All other grain.					
Junata,	25	74	. . .	25	. . .	. . .	61	93,297	109,347	18,684	279	33	\$3,669 00	311,475
Lackawanna,	15	37	12	8	6	1	291	23,800	679,655	4,060	250	45	25,490 00	222,533
Lancaster,	171	537	65	129	10	33	136	1,772,257	2,006,395	352,860	264	314	74,416 64	141,900
Lawrence,	19	53	45	14	3	2	202	335,116	210,300	70,923	264	49	13,080 00	31,980
Lebanon,	28	87	15	16	5	7	123	331,807	288,573	66,407	264	66	16,530 00	59,820
Lehigh,	57	185	67	44	. . .	13	131	682,205	535,352	141,281	271	104	27,734 64	530,833
Luzerne,	47	155	29	33	8	6	206	132,754	777,902	31,133	250	93	32,403 00	206,583
Lycoming,	35	113	12	30	1	4	130	329,681	496,508	66,252	273	73	16,066 00	27,235
McKean,	7	13	. . .	2	3	1	230	1,975	96,197	385	161	7	22,243 70	87,235
Mercer,	31	88	65	19	7	5	203	382,335	321,130	77,480	221	81	2,602 25	240,830
Midlin,	19	51	. . .	16	1	2	71	112,900	100,900	22,590	242	33	5,160 00	77,792
Monroe,	23	95	1	27	1	. . .	64	65,658	274,245	14,620	271	43	5,647 00	141,845
Montgomery,	99	292	97	69	5	25	144	996,465	1,146,901	187,174	237	196	54,937 21	17,775
Moutour,	6	16	2	2	1	2	55	41,606	44,124	8,261	235	12	3,432 18	383,972
Northampton,	55	99	29	49	. . .	6	123	537,291	775,212	128,104	281	124	41,387 10	19,119
Northumberland,	35	107	. . .	28	5	2	70	138,511	194,085	28,441	251	55	12,946 00	1,320,729
Perry,	39	108	. . .	34	1	3	59	149,977	196,681	30,600	257	51	6,295 75	20,363
Philadelphia,	12	33	37	. . .	10	2	541	702,306	1,287,500	149,764	254	104	62,435 56	2,000
Pike,	6	18	. . .	3	. . .	. . .	84	9,370	71,836	1,874	259	8	922 00	64,820
Potter,	7	11	. . .	6	1	2	140	1,250	14,050	250	94	6	588 50	14,600
Schuylkill,	45	131	10	31	7	7	66	242,833	193,969	49,987	231	72	18,527 00	4,835
Snyder,	19	63	4	17	. . .	2	140	190,511	78,863	38,802	259	36	5,676 00	6,250
Sonerset,	51	140	1	37	2	12	57	194,233	224,856	38,136	232	62	5,158 22	9,711
Sullivan,	9	26	. . .	8	1	. . .	110	31,385	39,998	6,277	183	11	600 00	238,514
Susquehanna,	37	97	. . .	29	2	6	183	66,510	435,671	13,301	234	55	9,711 00	18,450
Tioga,	21	64	. . .	8	5	8	256	69,858	228,299	15,989	220	39	8,738 05	23,833
Union,	21	58	38	16	3	2	161	192,976	154,173	40,245	267	29	4,643 40	87,791
Venango,	25	57	28	19	2	4	128	160,345	198,738	36,929	215	49	14,535 00	116,790
Warren,	12	28	14	8	3	1	193	45,600	150,300	9,520	253	24	8,470 00	23,833
Washington,	46	110	27	14	23	9	126	355,694	258,579	72,978	187	80	16,535 00	23,833

Wayne,	24	70	. . . . .	20	2	2	224	9,806	405,404	1,952	228	39	10,425 75	182,006
Westmoreland,	69	163	37	21	34	14	72	557,296	286,221	109,908	204	118	22,403 00	3,990
Wyoming,	23	71	1	20	1	2	210	37,061	480,180	11,169	238	42	6,800 00	76,377
York,	102	308	4	89	. . .	13	80	798,789	709,163	138,844	273	159	13,168 50	
	2,470	6,967	1,121	1,739	309	415	171	19,432,930	23,835,539	3,895,354	239	4,728	\$1,128,063 51	8,357,126

NOTE.—There were forwarded by the Bureau 3,781 blanks to the flour and grist-mills of the State, of which 512 were not returned, and 799 returned unfilled, as the parties to whom they were sent were out of business; or there were duplicates sent to the same parties to several post-offices, leaving 2,470 returns which were received properly filled out, and are included in the foregoing table.

BREWERIES.

TABLE showing the number of *Breweries*, the production, etc., in the several counties of Pennsylvania, compiled from returns made to the Bureau for the year ending December 31, 1883.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	AMOUNT OF RAW MATERIAL USED.			Number of bottles used.	Number of barrels (31 gal- lons, U. S. standard) beer, ale, and porter manufactured.
					Malt—bushels.	Rice and other ma- terial—pounds.	Hops—pounds.		
Allegheny,	16	262	358	\$221,953 50	627,897	1,152,283	409,760	..	268,059
Beaver,	3	233	8	3,694 00	5 160	..	3,565	5,925	3,007
Berks,	4	313	94	44,958 75	122,351	6,500	76,186	..	51,110
Blair,	6	190	19	6,874 00	12,474	..	6,867	..	4,237
Bradford,	1	46	2	200 00	1,146	..	736	5,760	460
Cambria,	4	200	18	9,038 57	22,623	..	15,260	..	7,146
Carbon,	2	306	8	3,500 00	7,390	..	4,450	..	3,832
Centre,	1	300	4	1,500 00	2,000	..	1,000	..	750
Clarion,	1	300	3	1,570 00	1,550	..	700	..	450
Clearfield,	1	22	1	280 00	387	..	220	..	168
Clinton,	3	212	6	1,800 00	5,241	..	3,950	1,440	2,059
Crawford,	4	227	27	12,312 00	21,244	95,500	17,200	32,400	7,648
Dauphin,	3	312	31	9,531 73	32,195	..	24,394	..	13,985
Elk,	1	300	3	1,080 00	2,800	..	1,800	576	1,109
Erie,	7	268	50	28,660 00	77,058	23,080	48,676	13,620	33,757
Franklin,	2	168	5	1,150 00	1,295	..	1,150	10,800	692
Indiana,	1	59	2	1,095 00	1,353	..	1,121	..	391
Jefferson,	3	265	7	2,770 00	5,285	..	3,500	..	1,774
Lackawanna,	3	313	41	26,520 00	102,327	..	59,534	..	40,994
Lancaster,	4	273	20	8,100 00	23,815	1,900	17,743	..	9,690
Lawrence,	2	200	7	4,020 00	8,000	..	6,000	1,152	3,500
Lehigh,	4	302	15	6,880 00	16,345	21,200	10,750	..	7,752
Luzerne,	4	306	65	33,641 81	92,791	36,940	62,543	..	43,786
Lycoming,	4	175	17	8,085 00	20,512	..	9,727	720	8,672
McKean,	1	75	1	500 00	1,250	..	750	720	497
Mifflin,	1	67	3	1,000 00	1,212	..	567	1,100	397
Monroe,	1	300	2	..	270	..	298	..	60
Montgomery,	2	310	8	4,287 00	12,810	..	9,958	5,760	6,494
Montour,	2	100	8	2,725 00	6,000	..	2,750	..	1,829
Northampton, . . .	4	249	91	48,874 64	43,800	..	29,100	431,352	18,460
Northumberland, . .	1	300	6	2,880 00	7,100	..	3,900	..	3,400
Philadelphia,	54	268	1,338	\$51,400 00	2,314,395	752,600	1,745,996	389,896	1,068,333
Potter,	1	38	2	768 00	1,011	..	500	3,450	244
Schuylkill,	5	252	83	44,426 91	102,561	39,045	69,582	..	48,148
Venango,	3	300	8	3,030 00	3,321	..	2,685	16,640	1,305
Warren,	1	300	7	4,500 00	12,000	..	7,000	..	3,700
Washington,	1	66	3	313 00	..	..	..	..	499
Wayne,	2	306	14	6,746 00	18,661	..	11,804	..	6,933
Westmoreland, . . .	1	104	3	600 00	2,500	..	2,000	..	1,000
York,	3	59	8	2,546 00	10,117	..	6,337	..	3,065
Total,	167	216	2,396	\$1,413,718 91	3,750,247	2,129,048	2,680,059	921,311	1,679,383

DISTILLERIES.

TABLE showing the number of Distilleries, number of employes, amount of grain used, number of barrels of liquor manufactured, etc., compiled from returns made to the Bureau for the year ending December 31, 1884.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Number of bushels of grain used.	Number of barrels of liquor manufactured.	Kind of liquor manufactured.
Allegheny,	2	281	73	\$41,908 75	134,400	10,794	Rye whisky.
Bedford,	1	300	1	240 00	3,600	300	Rye whisky.
Berks,	3	184	9	3,408 00	27,015	2,400	Whisky and cologne spirits.
Centre,	2	183	3	472 00	2,120	172	Whisky.
Cumberland,	1	139	2	308 00	3,412	287	Whisky.
Dauphin,	3	133	9	3,275 00	8,620	765	Whisky.
Fayette,	5	161	97	33,425 30	107,848	10,125	Whisky.
Franklin,	4	208	7	1,575 48	10,229	800	Whisky.
Greene,	2	118	11	2,120 00	14,140	1,179	Whisky.
Huntingdon,	1	158	5	1,650 00	3,500	200	Whisky.
Indiana,	1	125	2	437 00	1,424	140	Whisky.
Lancaster,	3	124	5	1,335 00	8,999	598	Whisky.
Lebanon,	1	214	1	168 00	2,633	225	Whisky.
Lehigh,	2	6	2	.. ..	Apples, 339	3½	Apple brandy.
Lycoming,	3	152	3	602 00	3,119	248	Whisky.
Montour,	1	144	2	288 00	741	53	Whisky.
Philadelphia,	1	196	26	14,000 00	47,228	4,270	Whisky.
Somerset,	3	197	8	1,051 25	4,738	332	Whisky.
Union,	1	169	2	359 42	3,452	244	Whisky.
Washington,	3	95	7	1,480 00	11,318	1,007	Whisky.
Westmoreland,	3	197	11	8,500 00	44,337	3,895	Whisky.
York,	1	166	3	622 50	12,266	1,169	Whisky.
Total,	47	166	289	\$117,225 70	Apples, 389 455,139	39,211½	Bottles used, 1,224

SLATE INDUSTRY.

By S. L. FISLER, Esq., *Secretary of Slate Exchange of Lehigh and Northampton counties, for the Bureau of Industrial Statistics.*

I have the honor to submit the following report upon the slate mining and manufacturing industry of the State:

This industry, if reference is made to the date of its birth, is almost an octogenarian, yet it is merely in its infancy as to recent phenomenal development and its promise of future growth.

The tentative character of the earlier efforts at slate mining, the imperfection of records, and the lapse of time render the securing of accurate data well nigh impossible. All that can be done now is to approximate the truth and look to future investigation for greater accuracy relative to its early history.

The slate formation, which is destined to prove a source of immense wealth to the State, lies immediately south of the Blue Ridge and almost parallel with the mountain, extending from the Delaware river, on the east, westward to about the center of Lehigh county. The surface of the country through which the slate-beds pass is thrown into ridges parallel to the mountain, which are broken through at intervals by small streams whose sides reveal the outcrop of the slate-rock. The entire dimensions of the formation are about forty-five miles long by from six to thirteen miles wide, the southern side of it, most distant from the mountain, sloping and shading off into the contiguous limestone formation.

Of this slate formation, the best informed of the practical and observing operators are inclined to the belief that thirty miles in length and from two to three miles in width include the cream of the easily-worked and profitable roofing and school slate-beds. That part nearest the mountain, as well as that nearest the limestone, has either lost some quality or received some admixture of foreign substances which interferes with the reed or fine splitting qualities, which are the essential of good slate.

The region thus outlined is divided into three districts known, respectively, to the trade as Bangor, Pen Argyl, and Slatington districts. The first has for its commercial center the borough of Bangor, a thriving and rapidly growing town, whose almost marvelous development reminds one of the mining towns of the western States, with the exception that everything about it indicates that it has come to stay, and that it will not, like so many of its sister cities of the west, fold its domestic tents and, like the

Arabs, steal away under the cover of a night. The second or Pen Argyl district has for its commercial center the flourishing town of Pen Argyl, whose growth within the past year fairly rivals that of Bangor, houses, stores, churches, schools, springing up as by magic, indicative of its present and promise of future prosperity. The third district has for its commercial center the town of Slatington, on the river Lehigh, whose past development, present growth, and domestic comfort are alike due to the surrounding slate industry.*

These districts are not merely artificial divisions for the convenience of the trade, but are more or less sharply defined by the topography of the country. The slate in each is also marked by certain definite characteristics, which it does not come within the scope of this report to discuss. Suffice it to say that each is good in its way, and no one of them can claim a monopoly of the market, since the entire product of each is consumed.

The first slate mined in the region was near the Water Gap, on the Delaware river, in 1805. The enterprise did not prove a success from the fact that shingles were plenty and cheap, and habit and prejudice had to be conquered ere the mining could become remunerative. As coal, when first mined, found but few friends, and those to whom it was offered were indignant that they should be expected to use "stone as fuel," so there were those who scouted the idea of roofing with "stone shingles."

The failure of the first effort, however, did not deter others from pursuing the new industry, and one opening after another was made, and the manufacturing tried with varying degrees of success for a period of nearly forty years. The want of experience in developing the openings, the lack of skill in manufacturing and properly applying the material, the prejudice against it and the absence of a recognized necessity for anything other than shingle roofs, rendered all these early enterprises more or less abortive, thus paralleling the experience of most industries in the earlier stages of their development.

In 1844, some Welsh miners opened a quarry towards the west end of the slate belt east of the Lehigh river near Slatington, and by dint of effort secured a market for their slate. Other openings soon followed in this locality, and were operated with varying degrees of success. The want of an active stimulating demand, and the difficulty of either reaching or securing an extended market in those days, were the chief obstacles to remunerative operations. The Lehigh canal, and the Lehigh Valley railroad, however, gave the Slatington district the advantages of transportation, at a much earlier date than were enjoyed by the other districts, and consequently stimulated development there much more rapidly than elsewhere.

The first quarry in the Pen Argyl district was opened about the year 1854. A little subsequent to this an opening was also made at East Ban-

* NOTE.—This district is regarded, for the purposes of this report, as embracing the quarries about Chapmansville, which is another prosperous center of slate-mining and manufacturing interests.

gor, and the rich deposits of these districts thereby revealed. Other openings soon followed, but the want of transportation facilities retarded the development of those districts for a long time. The product of each had to be carted many miles in order to reach either railroad or water transportation, which added materially to the cost of putting the product upon the market.

During the period of the war, the high price of slate, in common with other commodities, measurably reduced the difficulty of placing them upon the market at remunerative rates. Under the stimulus thus received, the attention of capitalists began to be directed to these regions. The want of railroad facilities was recognized, and the construction of one had, in fact, been determined upon, when the panic of 1873 arrested all further progress for a time. As soon, however, as business revived, the old interest was awakened, many new quarries were opened, and the necessity for railroad facilities was again agitated. The result was the construction of the Bangor and Portland road, extending from its junction with the Delaware, Lackawanna and Western railroad at Portland, westward through both the Bangor and Pen Argyl districts, and the construction of the Lehigh and Lackawanna road, extending from its junction with the Lehigh Valley and the Philadelphia and Reading railroads at Bethlehem, through the Pen Argyl into the Bangor district, thus opening up to each transportation by two different routes, connecting them with the great slate markets of the country, and placing them, for the first time in their history, upon an equal footing with the Slatington district.

The effect of this access to the outside world has been most marked in those districts, causing a large influx of capital, the development of numerous new industries, the accession of large numbers of people to their respective populations, and great development of the material resources of the State.

Turning from these generic statements and fixing our attention upon the individual districts, we note, in contrast with the small beginnings indicated, the present state of the industry in each. The whole number of quarries or openings in the Slatington region, in a greater or less state of development, and producing a marketable product each year, is about fifty, having an invested capital of not less than \$2,000,000, and employing about one thousand men. Their joint output for the past year, as near as can be ascertained, was about one hundred and fifty-five thousand squares of roofing-slate, three thousand two hundred cases of school-slate, three thousand four hundred cases of blackboards, together with large quantities of flagging, mantels, &c.

In the Pen Argyl region the number of quarries is from twelve to fifteen, with new ones constantly being opened. The capital invested aggregates upwards of \$650,000. About four hundred and fifty men are employed in mining and manufacturing. The output from this district, during the past year, was fifty-three thousand three hundred and forty-seven squares of

roofing-slate. But little has been done there, as yet, in the manufacture of school-slate, blackboards, and flagging.

In the Bangor district there are some twenty quarries, with more or less development. These represent an aggregate of \$1,000,000 of invested capital, and employ seven hundred and fifty men. The output, during the past year, was one hundred and thirty thousand four hundred and twenty-eight squares of roofing-slate, and one million five hundred thousand school-slates. But little has yet been done in the manufacture of blackboards and flagging, though machinery for the purpose is now being introduced.

To summarize briefly the foregoing, as to the facts and product common to each district, we have the following exhibit of the quarries in operation, the capital invested, the men employed, and the output of manufactured material during the past year, viz :

	NUMBER QUARRIES.	Amount of capital.	Men em- ployed.	Roofing-slate output, 1883.
Slatington district,	50	\$2,000,000	1,000	155,000 squares.
Pen Argyl district,	15	650,000	450	53,347 "
Bangor district,	20	1,000,000	750	130,428 "
Total,	85	\$3,650,000	2,200	338,775 squares.

The average wages paid to the different classes of employes in the mining and manufacture of slate is about as follows : To boss-quarrymen, from \$2 25 to \$2 75 per day ; to block-makers, from \$1 80 to \$2 00 ; to splitters, from \$1 75 to \$2 25 ; to laborers, from \$1 20 to \$1 50.

The prices for best No. 1 roofing-slate at the quarries during the past year were as follows :

24-inch and 22-inch,	\$3 85
20-inch and 18-inch,	4 00
16-inch,	4 25
14-inch,	4 00
12-inch,	3 50

Such, in brief, is the past history of the slate industry of the State and its present healthy status.

It is scarcely the province of reports to indulge in prophecies, yet it is hardly possible to refrain from indicating what will be the probable future developments of this great industry, which, from small beginnings, has attained such marked prominence within the past few years.

Whatever may have been the prejudices against slate as a roofing material in the early days of its discovery in this country, they have now practically vanished. Its cheapness and durability, since it costs less and lasts longer than either shingles, tin, or iron, commend it, upon the score of economy, to thoughtful observers wherever it is introduced. Its deep, rich, uniform blue color contributes much to the beauty of all buildings,

the roofs of which are exposed to view. Its resistance to fire renders it preferable to tin, the soldered joints of which melt under excessive heat, or corrugated iron which warps and curls, whilst slate resists both heat and flames. This latter quality so commends it to fire insurance companies that a very considerable reduction of premium is made in favor of slate roofs. Then the maintenance of repairs on a good slate roof is much less than that upon roofs of any other material. It is not rusted by the moisture of the atmosphere, and hence does not need the frequent application of paints for its protection, like metal roofs. Being itself a mineral rock, it stands in no need of artificial aids to prevent its decay.

Then, in those regions which are dependent largely upon cisterns for their supply of water for domestic purposes, it is growing in constant appreciation. Water gathered from slate roofs being entirely free from the paint deposits which come from iron and tin roofs, and from the decayed wood and vegetable matter incident to old shingle roofs, is always clean, pure, and sweet.

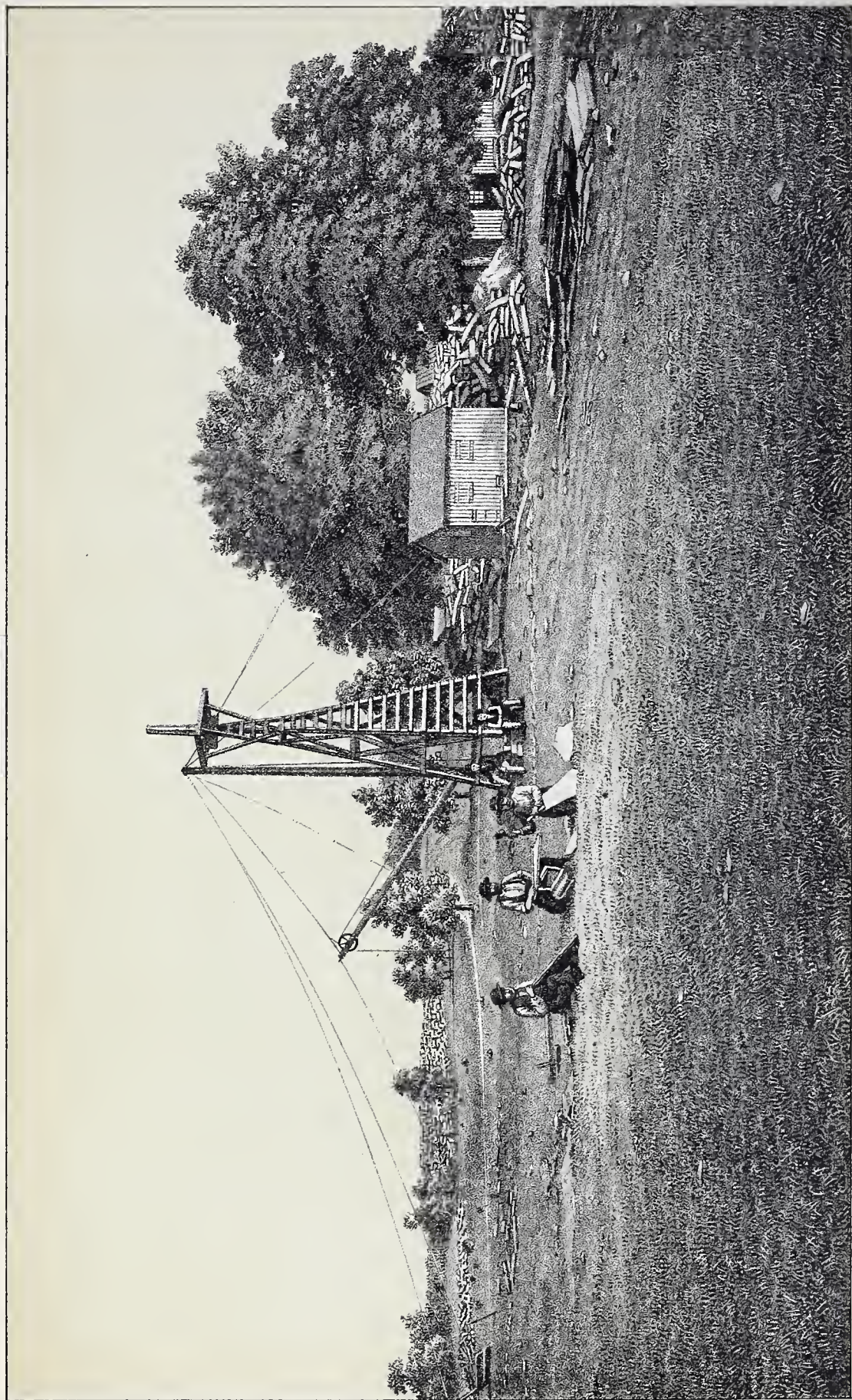
The foregoing qualities, which are the obvious characteristics of good slate, commend the material more and more to public favor, and are opening up for it extended markets in the far West where, as yet, there is no scarcity of timber, and where wooden shingles are still in abundance. Each year marks a growing demand for slate, and all the quarries are taxed to their utmost capacity to meet the requirements, whilst new markets, that might be opened for it, are left untouched.

Nor is it simply for roofing purposes that the demand for this material is growing. Its close-grained texture, rendering it impervious to water or moisture, is bringing it into prominence for lintels, window-sills, pavements, tiles, steps, &c., whilst its resistance to heat commends it for mantels, hearths, register frames, and all that class of architectural work where such absolutely incombustible material is required.

Nor is the demand for it confined to domestic consumption. The exports grow larger year by year. When the freights admit, slate are frequently shipped to England, notwithstanding the wealth and extent of her own slate mines in Wales, and to the various commercial ports in Europe. The shipments to Australia are constant. Japan is recognizing the superiority of slate as a roofing material, and a number of shipments were made the past year to Yokohama, so that it is not an exaggeration to say that the civilized world is opening up to the slate trade.

With a growing home market, which is destined to develop with an ever-increasing rapidity, as the country becomes more thickly settled, and the supply of timber constantly diminishes, it is scarcely possible to set a limit to the future demand for slate, for roofing purposes alone, in our own land, to say nothing of the growing demand in foreign countries.

If we consider the comparatively limited area of the slate formation, so far as it has yet been discovered, it being confined chiefly to the Atlantic seaboard of the country, along that mountain chain designated in our own



Nº 1. SLATE QUARRY, (MOORE & M^{rs} LAUGHLIN) DELTA, YORK CO.

Showing surface with derricks etc.

State as the Blue ridge, and note that its workable areas are confined chiefly to the States of Maine, Vermont, and our own, Pennsylvania, and further recognize the fact that the areas in these States are quite limited, it requires no prophetic knowledge to see that the course of the slate industry is going to parallel that of coal in the later as well as in the earlier history of its development. Its workable deposits are going to grow more and more valuable, and as the demand for slate becomes greater, the remuneration to invested capital will constantly increase. Nothing is hazarded, therefore, in the prediction that the time will speedily come when the Keystone State will be quite as proud of her slate deposits as she now is of her coal, and her wealth will be augmented by the one quite as much as by the other.

SLATE.

The following table is compiled from the returns made to the Bureau for the year ending December 31, 1883.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages.	Total number of squares (100 square feet) roofing-slate produced.	Total number of school-slates produced.	Number of square feet of blackboards manufactured.	Total number of feet of flagging, mantels, etc., manufactured.
Lehigh,	20	239	742	\$251,589 69	72,509	1,233,376	1,388,101	Pieces, 1,000
Northampton,	28	240	1,554	616,008 43	232,149	3,569,178	Fence posts, 600	122,601
York,	5	254	68	23,486 28	6,788			21,800
	53	244	2,364	\$891,084 40	311,506	4,852,554	Fence posts, 600 1,388,101	Pieces, 1,000 Feet, 144,401

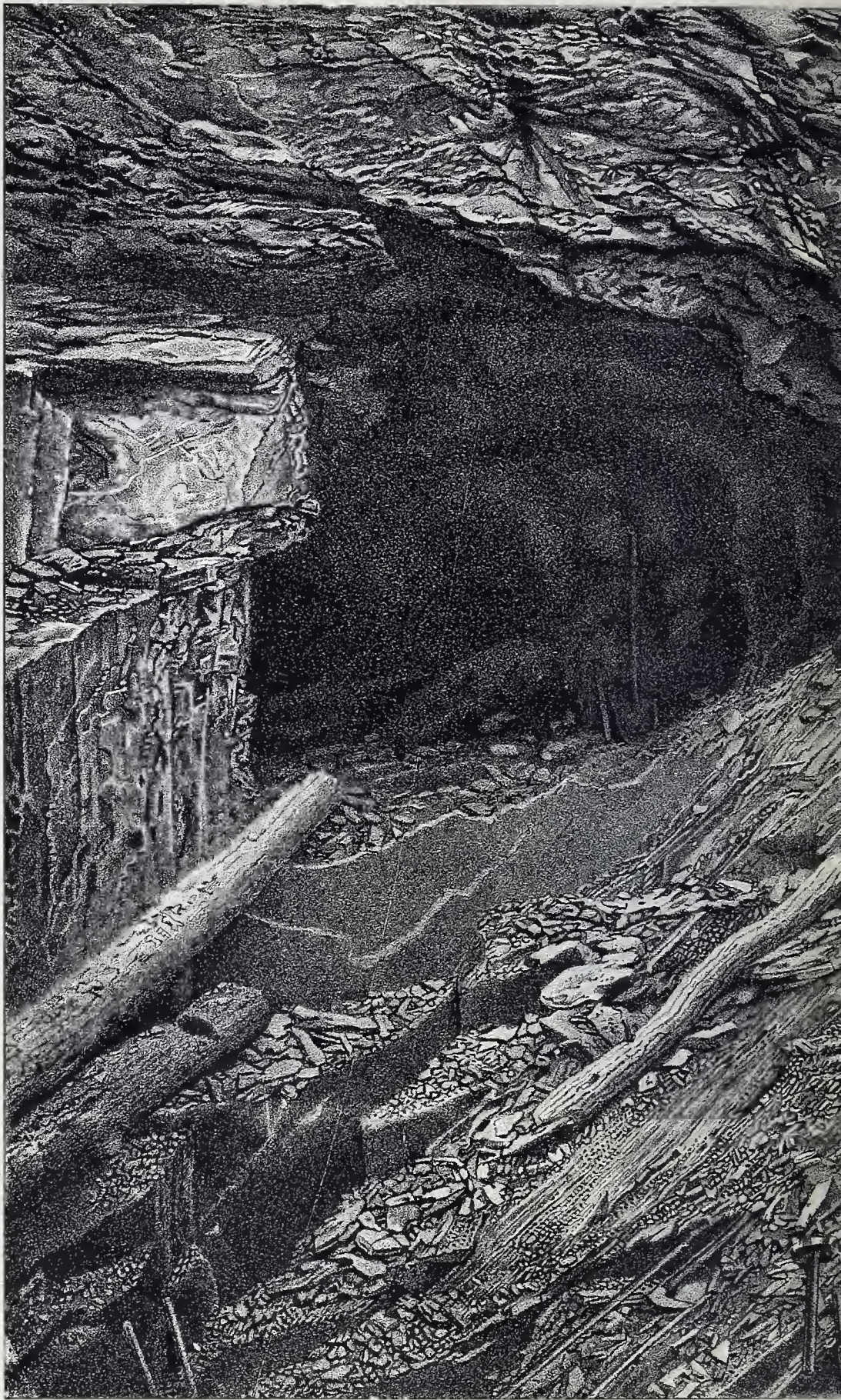
The Slate Quarries of Southern Pennsylvania.

The Slate industries of Southern Pennsylvania is confined exclusively to the southern border of York county, on the Maryland State line, near the right bank of the Susquehanna river, in the immediate vicinity of the town of Delta, Peach Bottom township, York county. This borough is situated about thirty-three miles south-east of the town of York. The quarries do not extend to the river bank, but are located in the region that is commonly known as the "Peach Bottom Slate District." This district includes part of Lancaster county, bordering on York, and also Peach Bottom township, in York county, and Dublin district, Harford county, Maryland. The Lancaster county quarries have generally been abandoned, but in York county there are five in operation at present, and eight on the Maryland side. The ridge extends three or four miles in a south-westerly direction, and about one half mile south of Delta. This borough lies on

the slope of the slate ridge, which is neither high nor steep, but preserves a rather uniform outline as far as it can be followed by the eye from the valley below. Delta, at no distant day, is destined to be a considerable town. Its inhabitants are progressive and intelligent, and are fully alive to the importance of the slate industry; but, unfortunately, do not possess the capital commensurate with their energy and pluck. The *Delta Herald*, an excellent paper, has been efficient in advancing the slate industry in this locality. The Peach Bottom railroad (narrow gauge) passes alongside of the town, and extends to the village of Peach Bottom, on the Susquehanna river; and a narrow gauge road from Baltimore, has recently been completed, which forms a junction with the above at Delta, affording ample facilities for the shipment of slate. The village of West Bangor, also in York county, contains about two hundred inhabitants, and lies on the ridge between the Pennsylvania and Maryland quarries, and the majority of the operators and employés reside in this State and in the towns above named.

The slate mined and manufactured in this district is only used for roofing purposes, and has the reputation of being the best in the country, if not in the world. It retains its color uniformly until it is worn out, and is said to be so ductile as not to splinter when being punched, only sufficient to leave a countersink for head of nail. Another advantage claimed for this slate is that it has the power of resisting frost and sun. It has been found on houses that had been roofed upwards of sixty years in as good state as when put on, excepting that it had worn thinner.

The accompanying lithographs show a description of Moore & McLaughlin's quarry, in York county. No. 1 shows the surface, with derricks, engine-house, and shop where slate is split and manufactured for market. No. 2 shows the quarry at a depth of forty-five feet, through a solid rock, or "Big Joint," as it is termed, which covers the slate formation. The slate is described on the plate, beneath where the men are standing, and dips in a southerly direction from north-east to south-west. The bureau is indebted to Mr. Robert L. Jones and Messrs. Moore & McLaughlin for their courtesy in furnishing much valuable information and in exhibiting their works.



Nº 2. SLATE QUARRY (MOORE
Showing the work



M^{rs} LAUGHLIN DELTA, YORK CO.

45 feet below the surface.

MANUFACTURES—MISCELLANEOUS.

A STATEMENT of *Miscellaneous Industries, showing the number of persons employed, value of production, etc., compiled from returns made to this office, etc., for the year ending December 31, 1883.*

Agricultural Implements.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured not otherwise accounted for.
Allegheny,	4	248	177	\$112,680 70	\$118,000 00	1,400 tons; 100 mowers and 14,000 plows.
Armstrong,	1	150	4	400 00	2,000 00	
Berks,	1	52	1	139 20		48 plows.
Bradford,	2	275	80	37,250 00	134,000 00	
Bucks,	1	350	20	6,800 00	20,500 00	
Cambria,	1	300	5	1,900 00	5,500 00	
Centre,	1	230	6	2,500 00	6,000 00	
Chester,	2	154	13	3,025 00	33,150 00	
Columbia,	1	300	6	1,545 27	3,675 00	
Cumberland,	3	261	9	2,025 00	7,025 00	
Dauphin,	2	232	23	10,129 67	24,022 93	1,000 cradles.
Erie,	2	295	69	30,138 00	101,000 00	1,500 horse-rakes,
Franklin,	2	301	103	34,323 55	102,100 00	
Lancaster,	6	283	127	42,625 00	132,100 00	Portable forges, 100.
Lycoming,	3	196	13	1,734 35	9,403 72	
Mifflin,	1	110	12	2,040 00		25 drills.
Montgomery,	4	304	82	43,141 00	34,250 00	500 agricultural implements and 23,300 dozen forks.
Northampton, . . .	2	288	57	25,600 00	51,200 00	
Perry,	1	73	2	350 00	1,000 00	
Philadelphia,	6	301	293	162,498 26	508,000 00	
Susquehanna,	1	301	30	14,240 67	50,000 00	
Union,	2	300	57	19,071 52	90,934 40	
Washington,	1	60	1		400 00	
York,	5	270	461	152,740 00	612,400 00	
	55	234	1,656	\$706,897 19	\$2,046,661 05	40,473 agricultural implements.

Air-Brakes.

Allegheny,	1	313	512	\$420,000 00	\$1,200,000 00	
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Axes, Saws, &c.

Allegheny,	1	298	337	\$200,713 70	\$426,972 20	
Beaver,	1	300	85	50,000 00	175,000 00	
Blair,	1	207	5	550 00	3,900 00	
Centre,	1	215	50	17,338 74		6,990 dozen axes.
Clinton,	2	180	121	31,533 50	105,845 13	
Lancaster,	2	287	10	2,115 00	9,500 00	
Lycoming,	1	300	2	600 00	2,000 00	
Mifflin,	1	300	250	50,000 00		30,000 dozen axes and edge tools.
Philadelphia,	1	300	114	93,675 00		6,203,909 pounds steel saws.
	11	265	974	\$446,525 94	\$723,217 33	33,990 dozen axes and edge tools. 6,203,909 pounds steel saws.

MANUFACTURES—MISCELLANEOUS—Continued.

Baskets.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number persons employed.	Total amount paid in wages during the year.	Value of annual products.	Amount of goods manufactured, not otherwise accounted for.
Philadelphia, . . .	2	186	5	\$620 00	\$1,748 00	
York,	1	230	3	1,040 00	5,000 00	
	3	208	8	\$1,660 00	\$6,748 00	

Bath-Tubs and Boilers.

Philadelphia, . . .	3	274	42	\$18,628 71	\$100,000 00	
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Belts and Hose.

Allegheny,	1	300	20	\$11,700 00	\$90,000 00	
Delaware,	1	300	5	3,640 00	13,500 00	
Lycoming,	1	313	9	4,483 87	40,000 00	
Philadelphia, . . .	4	308	48	25,207 00	283,649 44	
	7	304	82	\$45,030 87	\$427,140 44	

Bobbins and Spools.

Delaware,	2	300	10	\$2,400 00	\$7,000 00	
Philadelphia, . . .	2	295	12	3,740 00	9,000 00	
	4	297	22	\$6,140 00	\$16,000 00	

Bolts and Nuts.

Allegheny,	8	273	391	\$175,398 35	\$275,000 00	2,452 tons of bolts and nuts and 750 tons steel.
Berks,	1	300	123	53 935 77		3,000 tons of bolts and nuts.
Lancaster,	1	300	50	18,000 00	50,000 00	
Philadelphia, . . .	7	285	928	333,407 95	1,410,338 43	780 tons bolts.
	17	289	1,492	\$580,742 07	\$1,535,338 43	6,232 tons of bolts and nuts and 750 tons of steel.

Bone and Pearl Goods.

Philadelphia, . . .	2	300	154	\$47,826 56	\$83,000 00	
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Boots and Shoes.

Allegheny,	2	281	121	\$44,365 00	\$127,350 00	
Bradford,	2	290	70	31,544 00	130,000 00	
Bucks,	1	300	9	2,500 00	5,000 00	
Cumberland, . . .	1	263	60	14,000 00	70,000 00	
Dauphin,	1	240	60	21,872 00	77,207 83	
Erie,	1	275	60	16,000 00	60,000 00	
Lancaster,	1	250	1	200 00	800 00	
Lehigh,	3	273	186	68,700 00	379,000 00	
Mifflin,	1	311	4	1,050 07	4,700 00	

MANUFACTURES—MISCELLANEOUS—Continued.

Boots and Shoes—Continued.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Montgomery, . . .	1	300	1	\$416 00	\$1,200 00	
Northumberland, . .	1	280	25	8,000 00	30,000 00	
Philadelphia, . . .	52	292	3,661	1,633,055 91	5,695,871 06	
Schuylkill,	4	271	143	36,606 22	184,798 86	
Wayne,	1	300	50	23,890 00	90,000 00	
York,	2	285	95	20,900 00	111,000 00	
	74	280	4,551	\$1,923,099 20	\$6,966,927 80	

Box Manufacturers and Boat Builders.

Allegheny,	4	262	80	\$30,326 45	\$25,000 00	147,755 boxes, 4,000,000 feet lumber.
Armstrong, . . .	1	290	9	3,250 00		5,000 boxes and 250,000 feet lumber.
Clarion,	1	300	6	1,900 00	3,000 00	
Lycoming,	2	295	112	41,530 66		{ 6,939,000 box shooks.
Philadelphia, . . .	1	300	50	12,000 00	55,000 00	{ 4,768,000 feet lumber.
Schuylkill,	1	270	15	4,600 62		8 barges.
Wayne,	4	198	21	12,042 50	24,718 00	12 boats.
	14	272	293	\$105,650 23	\$107,718 00	152,755 boxes, 6,939,000 box shooks. 20 boats and barges and 9,018,000 feet lumber.

Brass Manufactures.

Allegheny,	3	302	64	\$34,200 00	\$110,000 00	32,000 pounds brass.
Erie,	1	312	400	215,000 00	475,000 00	
Northampton, . . .	2	301	28	13,127 56	35,407 42	7,800 pounds brass.
Philadelphia,	2	303	9	18,292 39	38,876 88	
	8	305	501	\$280,619 95	\$659,284 30	39,800 pounds brass.

Bridge (Iron) Builders.

Allegheny,	4	307	986	\$524,401 89	\$269,235 80	13,986 tons.
Bradford,	1	300	243	119,500 00		8,500 tons.
Chester,	1	300	48	48,000 00	300,000 00	
Philadelphia, . . .	1	285	15	6,412 50	25,000 00	
	7	298	1,292	\$698,314 39	\$594,235 80	22,486 tons.

Bricks, Common.

Allegheny,	8	258	164	\$65,557 33		Number of bricks, 19,373,000.
Armstrong,	2	256	20	6,975 00		Number of bricks, 2,000,000.
Beaver,	2	275	15	5,400 00		Number of bricks, 2,200,000.
Bedford,	1					Number of bricks, 375,000.
Berks,	8	112	174	25,722 21		Number of bricks, 11,580,000.
Blair,	2	125	58	7,000 00		Number of bricks, 1,700,000.
Bucks,	4	118	19	2,499 00		Number of bricks, 740,850.
Carbon,	1	240	20	3,500 00		Number of bricks, 1,500,000.
Chester,	7	146	94	17,235 12		Number of bricks, 5,100,000.
Crawford,	2	64	16	1,814 00		Number of bricks, 700,000.
Cumberland,	4	141	46	6,193 02		Number of bricks, 2,220,000.
Dauphin,	8	195	177	50,496 23		Number of bricks, 10,250,000.
Delaware,	6	150	140	35,692 88		Number of bricks, 8,900,000.
Erie,	4	120	86	18,598 17		Number of bricks, 6,108,000.
Franklin,	1	180	17	3,700 00		Number of bricks, 1,200,000.

MANUFACTURES—MISCELLANEOUS—Continued.

Bricks—Common—Continued.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Greene,	2	45	13	\$600 00	.....	Number of bricks, 264,000.
Huntingdon,	1	40	7	235 60	.....	Number of bricks, 160,000.
Indiana,	1	104	6	900 00	.....	Number of bricks, 300,000.
Lackawanna,	2	168	38	12,977 60	.....	Number of bricks, 3,700,000.
Lancaster,	10	110	148	26,394 71	.....	Number of bricks, 8,385,000.
Lebigb,	6	107	129	26,269 00	.....	Number of bricks, 7,885,000.
Luzerne,	6	105	71	12,926 30	.....	Number of bricks, 3,650,000.
Lycoming,	2	145	28	6,130 00	.....	Number of bricks, 1,800,000.
Montgomery,	12	136	142	23,445 47	.....	Number of bricks, 7,306,850.
Montour,	1	100	5	500 00	.....	Number of bricks, 257,000.
Northampton,	3	110	40	8,900 00	.....	Number of bricks, 2 320,000.
Northumberland, . .	2	120	19	3,056 00	.....	Number of bricks, 793,000.
Pbiladelphia,	39	191	2,296	800,961 87	.....	Number of bricks, 176,752,040.
Schuylkill,	2	113	21	3,397 49	.....	Number of bricks, 750,000.
Venango,	2	111	14	1,770 36	.....	Tile, ft., 17,000, bricks, 700,000.
Westmoreland,	4	134	34	2 776 75	.....	Number of bricks, 920,000.
York,	5	193	35	8,370 00	.....	Number of bricks, 2,623,000.
	160	142	4,092	\$1,190,244 11	.....	Number of bricks, 292,512,740.

Bricks—Fire and Terra-Cotta.

Allegheny,	3	306	197	\$86,753 72	.....	Fire bricks, 9,751,729.
Armstrong,	1	240	35	1,186 18	.....	Fire bricks, 1,100,000.
Beaver,	3	301	67	24,851 14	.....	Fire bricks, 2,344,000.
Berks,	3	274	92	30,356 79	.....	Fire bricks, 3,850,000.
Cambria,	1	300	125	50,000 00	.....	Fire bricks, 5,000,000.
Centre,	1	304	110	48,560 00	.....	Fire bricks, 5,000,000.
Chester,	2	290	14	4,100 00	\$16,100 00	Terra-cotta, &c.
Clarion,	1	100	9	900 00	.....	Fire bricks, 300,000.
Clearfield,	3	279	231	80,401 00	.....	Fire bricks, 6,494,000.
Cinton,	1	280	45	22,000 00	.....	Fire bricks, 2,000,000.
Dauphin,	1	225	20	8,000 00	25,000 00	Fire bricks, 200,000.
Delaware,	1	250	45	20,000 00	.....	Fire bricks, 1,011,000.
Fayette,	1	276	12	4 885 20	.....	Fire bricks, 200,000.
Indiana,	1	300	60	24,000 00	30,000 00	Fire bricks, 1,011,000.
Lehigh,	3	285	114	28,075 57	.....	Fire bricks, 4,094,971.
Luzerne,	1	260	30	9 500 00	33,000 00	Chimney tops, sewer pipes, &c.
Philadelphia,	10	301	248	122,623 80	323 512 25	Fire bricks and terra-cotta, 2,550,000.
Somerset,	3	308	275	98,860 78	33,751 88	Fire bricks, 10,000,000.
	40	271	1,729	\$664,994 13	\$463,364 13	Fire bricks, 53,695,700.

Britannia Ware, &c.

Allegheny,	1	295	51	\$19,201 67	\$62,138 96
Pbiladelphia,	3	291	59	25,501 39	76,943 00
	4	293	110	\$44,703 06	\$139,086 96

Brooms.

Adams,	1	90	1	.....	1,000 brooms.
Allegheny,	1	300	21	\$69,140 00	171,972 brooms.
Armstrong,	1	203	2	200 00	.....
Bedford,	1	300	3	1,000 00	18,000 brooms.
Huntingdon,	1	102	3	306 00	1,530 00
Pbiladelphia,	1	300	53	23,318 90	75,000 00
	6	216	83	\$93,964 90	\$77,558 70
					190,972 brooms.

MANUFACTURES—MISCELLANEOUS—Continued.

Brushes and Brush-Blocks.

COUNTY.	Number of establishments	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	3	303	19	\$7,000 00	\$40,000 00	10,000 pounds curled hair and 36,000 brushes.
Berks,	2	302	8	1,525 00	9,000 00	
Delaware,	1	300	7	1,864 00	7,129 00	
Lackawanna,	1	290	25	8,000 00	20,000 00	
Lehigh,	1	280	6	1,120 00	4,500 00	
Northampton,	1	297	18	6,250 00		
Philadelphia,	13	302	461	138,532 62	311,565 34	
Venango,	1	300	25	5,616 00	25,000 00	36,000 brushes and 10,000 pounds curled hair.
	23	297	569	\$169,907 62	\$417,194 34	

Burr Mill-Stones.

Northampton,	1	280	3	\$1,500 00	\$4,250 00	
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Buttons.

Philadelphia,	6	270	172	\$53,872 75	\$123,000 00	
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Carriages and Wagons.

Allegheny,	7	301	137	\$53,738 34	\$177,000 00	
Bradford,	1	275	1		500 00	
Bucks,	1	312	12	4,326 00	11,364 00	
Cumberland,	4	300	51	25,800 00	63,300 00	
Dauphin,	2	300	30	9,362 00	30,800 00	
Erie,	3	283	38	14,139 36	47,500 00	
Lancaster,	1	300	2	600 00	2,000 00	
Lehigh,	1	300	11	1,180 00	5,000 00	
Luzerne,	1	300	6	3,500 00	10,000 00	
Lycoming,	2	304	18	8,162 25	20,500 00	
Mercer,	2	295	17	7,725 16	22,000 00	
Montgomery,	1	300	8	4,446 00	9,000 00	
Northampton,	3	303	38	15,776 61	32,912 56	
Philadelphia,	15	297	641	351,212 88	780,120 94	
Schuylkill,	1	300	7	2,500 00	7,000 00	
Union,	5	300	41	10,175 00	38,500 00	
Venango,	1	300	18	8,750 00	27,500 00	
Washington,	1	308	31	10,868 00	18,752 00	
Westmoreland,	1	300	8	3,500 00	7,500 00	
York,	3	296	21	4,495 00	11,800 00	
	56	298	1,138	\$545,256 60	\$1,323,049 50	

Cars—Railroad, Car-Wheels, etc.

Beaver,	1	261	40	\$16,500 00	\$110,000 00	
Blair,	1	290	70	18,000 00	35,000 00	
Columbia,	2	284	538	251,053 00	830,000 00	
Dauphin,	3	276	925	313,115 44	1,325,000 00	
Erie,	1	300	200	75,000 00	850,090 00	
Fayette,	1	300	35	20,475 00	50,142 35	
Lehigh,	1	205	1,512	48,723 99	341,997 22	
Philadelphia,	1	309	700	260,000 00	2,000,000 00	
Westmoreland,	1	300	35	16,927 50	73,750 00	
York,	2	287	498	215,000 00	750,000 00	
	14	281	4,553	\$1,234,794 93	\$6,370,889 57	

MANUFACTURES—MISCELLANEOUS—Continued.

Chemicals.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	1	310	360	\$169,161 83	.....	Acids, tons, 4,868; alum, tons, 2,961; sodas, tons, 20,698; salt, tons, 140; lime, tons, 4,101; salt cake, tons, 406; calcium, tons, 89; liquid salt, 733; glauber salts, tons, 3,072.
Erie,	1	300	8	3,855 13	.....	Salammonica, 20 tons; fertilizers, 700 tons.
Montgomery, . . .	1	300	1	.....	.....	Black liquor, 54 barrels; glauber salts, 324 barrels.
	3	303	369	\$173,016 63		

Chains.

Allegheny,	2	300	160	\$15,000 00	\$50,000 00	1,200 tons, prison contract labor.
Berks,	1	300	10	3,120 00	8,000 00	
Philadelphia,	4	288	82	44,953 35	.....	2,037 tons.
York,	3	273	47	12,900 00	59,700 00	
	10	291	299	\$75,973 35	\$117,700 00	3,237 tons.

Cigars.

Adams,	1	300	60	\$13,000 00	.....	2,500,000
Allegheny,	3	299	117	20,006 65	.....	10,073,150
Berks,	7	826	308	74 231 00	.....	10,180,550
Blair,	1	300	4	1,339 30	.....	216,000
Bucks,	3	271	145	28,580 00	.....	5,171,700
Erie,	1	305	18	5,135 00	.....	613,025
Lancaster,	3	275	34	9,150 00	.....	660,000
Lebanon,	1	290	27	6,693 78	.....	1,355,700
Lehigh,	1	300	35	10,200 00	.....	1,885,000
Montgomery,	1	300	75	20,000 00	.....	3 000,000
Philadelphia,	17	295	962	433,758 64	.....	36,626,250
Snyder,	2	291	3	447 20	.....	173,600
Tioga,	1	285	40	19,674 40	.....	1,348,605
York,	2	300	18	3 200 00	.....	1,171,200
	44	292	1,846	\$654,415 97	.....	75,074,780

Clothes-Pins and Shoe-Pegs.

Bradford,	1	225	24	\$5,500 00	.....	20,250 bushels shoe-pegs.
Lackawanna,	1	182	26	4,900 00	.....	25,000 bundles clothes-pins.
Monroe,	3	220	66	14,730 00	\$14,704 00	29,000 bundles clothes-pins; 19,400 bushels shoe-pegs.
	5	209	116	\$25,030 00	\$14,704 00	54,000 bundles clothes-pins; 39,650 bushels shoe-pegs.

Coopers.

Allegheny,	1	280	30	\$14,700 00	.....	125,000 barrels and 25,000 kegs.
Beaver,	2	300	12	5,000 00	.....	7,000 oil barrels and 25,000 white-lead kegs.
Bedford,	3	300	23	5,500 00	\$13,070 00	
Columbia,	1	250	7	3,000 00	.....	50,000 powder kegs.

MANUFACTURES—MISCELLANEOUS—Continued.

Coopers—Continued.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Erie,	1	200	4	\$500 00	\$2,000 00	Butter tubs.
Mercer,	1	252	15	8,767 16		161,935 nail kegs.
Philadelphia, . . .	4	305	171	88,129 83	373,622 00	
Tioga,	1	312	2	250 00		
Venango,	1	300	50	19,344 64	90,000 00	
Wyoming,	1	245	7	3,000 00		60,000 powder kegs.
	16	275	321	\$148,191 63	\$478,692 00	132,000 barrels. 321,935 kegs.

Coffins and Caskets.

Allegheny,	1	303	200	\$115,000 00	\$325,000 00	
Dauphin,	1	300	25	10,407 99	35,000 00	
Erie,	1	300	43	13,600 00	39,233 19	
Lackawanna,	1	305	34	17,144 33	42,000 00	
	4	302	302	\$156,152 32	\$441,233 19	

Combs.

Lancaster,	1	300	42	\$11,451 76	\$28,882 23	
Philadelphia,	3	263	31	10,474 07	32,500 00	
	4	282	73	\$21,925 63	\$61,382 23	

Copper.

Allegheny,	1	325	75	\$72,547 66		1,269 tons.
Philadelphia,	1	304	41	28,007 78	\$175,000 00	
	2	315	116	\$100,555 44	\$175,000 00	1,269 tons.

Cordage, Rope, Twine, &c.

Allegheny,	1	300	16	\$5,890 00	\$35,000 00	
Beaver,	1	300	137	37,000 00	175,000 00	
Berks,	1	300	75	10,000 00	60,000 00	
Bucks,	2	247	60	8,104 97	45,000 00	
Lancaster,	1		3		2,000 00	
Northampton, . . .	1	270	45	9,875 00	55,000 00	
Philadelphia,	9	273	796	223,719 00	2,307,420 00	
York,	1	300	20	3,750 00	30,000 00	
	17	284	1,152	\$298,338 97	\$2,709,420 00	

Corks.

Lancaster,	3	300	188	\$45,339 00	\$425,000 00	
Philadelphia,	4	296	59	18,167 94	55,000 00	
	7	298	247	\$63,506 94	\$480,000 00	

MANUFACTURES—MISCELLANEOUS—Continued.

Cruelibles.

COUNTIES.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	1	308	75	\$35,281 96	\$90,000 00	Glass-house pots.
Philadelphia,	3	280	23	12,500 00	95,000 00	
	4	294	98	\$47,781 96	\$185,000 00	

Cutlery.

Beaver,	1	200	100	\$35,000 00	\$100,000 00	
Philadelphia,	1	300	5	2,200 00	4,500 00	
	2	250	105	38,200 00	\$104,500 00	

Emery and Grinding Machinery.

Carbon,	1	300	12	\$5,000 00	\$30,000 00	
Monroe,	1	307	41	24,801 00	207,858 99	
	2	303	53	\$29,801 00	\$237,858 99	

Envelopes, &c.

Philadelphia,	3	300	152	\$63,515 00	\$296,000 00	
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Fancy Leather Goods.

Philadelphia,	3	300	493	\$133,744 00	\$458,507 00	
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Files.

Beaver,	1	246	194	\$80,639 35	\$186,979 36	Recutting old files.
Berks,	1	300	6	2,250 00	3,000 00	
Erie,	1	300	5	900 00	
Philadelphia,	1	305	374	121,726 08	384,231 90	
	4	288	579	\$205,515 43	\$574,211 26	

Fire-Arms.

Berks,	1	200	1	\$150 00	. . . . .	1,500 rifle barrels.
Lebanon,	1	275	4	1,090 00	\$2,525 00	Rifle barrels.
	2	238	5	\$1,240 00	\$2,525 00	1,500 rifle barrels.

Furniture.

Adams,	1	263	28	\$2,104 24	\$5,983 27	
Allegheny,	2	272	179	98,702 00	256,364 46	
Bradford,	3	295	104	46,545 02	143,000 00	
Cambria,	1	257	18	6,300 00	15,000 00	
Clinton,	1	156	40	18,000 00	49,000 00	

MANUFACTURES—MISCELLANEOUS—Continued.

FURNITURE—Continued.

COUNTIES.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product	Amount of goods manufactured, not otherwise accounted for.
Crawford,	1	305	20	\$10,293 75	\$16,360 00	
Dauphin,	2	301	62	23,000 00	85,000 00	
Erie,	2	300	41	16,375 00	47,000 00	
Jefferson,	1	300	6		2,500 00	
Lackawanna,	1	303	20	10,425 00	30,000 00	
Lancaster,	1	300	12	5,500 00	12,500 00	
Lycoming,	2	233	297	132,092 70	475,548 93	
Mercer,	1	286	17	10,504 00	26,250 00	
Northumberland,	1	300	20	7,200 00	25,000 00	
Philadelphia,	44	220	1,913	887,713 97	2,520,985 01	
Susquehanna,	2	250	41	11,000 00	35,400 00	
Tioga,	2	300	62	9,917 30	21,568 70	
Warren,	1	312	50	27,444 71	21,559 41	
Washington,	1	300	1	750 00	1,000 00	
Wayne,	2	293	10	4,300 00	9,500 00	
	72	277	2,941	\$1,328,167 69	\$3,799,519 78	One burned down February, 1884.

Gas-Meters, Tanks, &c.

McKean,	1	100	2	\$600 00	\$3,000 00	
Philadelphia,	4	300	301	120,292 79	344,028 82	
	5	200	303	\$120,892 79	\$347,028 82	

Gold-Beaters.

Philadelphia,	2	305	228	\$101,600 00	\$300,000 00	
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Glass Sand.

Huntingdon,	2	230	24	\$7,600 00	15,936 tons.
Mifflin,	2	287	70	26,600 00	28,500 tons.
	4	258	94	\$34,200 00	44,436 tons.

Glue.

Lancaster,	2	287	70	\$26,600 00	30,000 pounds and 150 barrels.
Philadelphia,	1	300	400	150,000 00	\$1,500,000 00
	3	293	470	\$176,600 00	\$1,500,000 00

Hair-Cloth.

Philadelphia,	2	300	50	\$19,750 00	\$70,000 00	
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Hair-Pins.

Philadelphia,	1	300	11	\$3,250 00	25,000,000.
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MANUFACTURES—MISCELLANEOUS—Continued.

Hardware.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	6	277	570	\$248,611 00	\$530,000 00	
Berks,	1	290	130	38,000 00	100,000 00	
Chester,	1	300	12	5,000 00	10,000 00	
Erie,	1	301	64	23,561 00	80,000 00	
Franklin,	1	295	4	941 62	2,250 00	
Northampton,	1	300	48	11,991 38	33,000 00	
Philadelphia,	7	298	1,109	526,719 21	980,490 97	1,500 tons castings.
Schuylkill,	1	260	16	7,325 00	13,950 00	
	19	290	1,953	\$862,149 21	\$1,749,690 97	1,500 tons castings.

Harness, Trunks, &c.

Allegheny,	2	304	24	\$13,099 74	\$41,899 22	
Berks,	1	300	2	570 00	2,000 00	
Bradford,	1	300	2	360 00	1,200 00	
Clinton,	1	250	3	1,000 00	3,500 00	
Dauphin,	3	302	23	7,726 00	52,200 00	
Lancaster,	1	300	4	1,800 00		
Philadelphia,	13	287	169	78,582 08	286,738 67	
Wayne,	1	300	4	500 00	3,000 00	
	23	293	231	\$103,637 82	\$390,537 89	

Hosiery Needles.

Chester,	1	250	20	\$3,000 00	250,000.
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Hubs, Spokes, Felloes, Handles, &c.

Berks,	3	293	37	\$15,188 59	\$55,000 00	12,000 handles.
Bucks,	1	125	3	500 00	1,000 00	
Chester,	2	290	148	76,500 00	230,000 00	
Columbia,	1	270	3	800 00	3,700 00	
Crawford,	2	175	10	2,600 00	2,000 00	700,000 feet lumber.
Cumberland,	2	298	70	21,000 00	70,000 00	
Erie,	5	273	75	28,717 54	75,246 02	1,705,000 handles, &c., and 300,000 feet lumber.
Fayette,	1	293	5	1,894 50	5,596 00	
Franklin,	1	200	1	117 74	731 61	
Lancaster,	5	223	41	15,683 04	62,600 00	200 dozen pairs shafts and 5,000 set of rims.
Lehigh,	2	100	2	750 00	5,800 00	
Monroe,	1	300	5	22 50		160,000 spokes.
Philadelphia,	4	279	66	23,566 40	100,000 00	11,650 set of hubs and 75,000 spokes.
Pike,	1	300	8	4,000 00		10,000 set hubs and 400,000 spokes.
Somerset,	2	125	6	630 00	1,900 00	
Venango,	2	300	8	4,200 00	11,000 00	100,000 spokes.
Warren,	2	300	7	2,700 00	9,500 00	
Westmoreland,	1	308	3	1,848 00		985,600 handles.
	38	247	498	\$200,718 31	\$634,073 63	2,672,600 handles, 735,000 spokes, 21,650 hubs, 1,000,000 feet lumber, 200 dozen pair shafts, and 5,000 set rims.

Lasts.

Philadelphia, . . .	2	287	25	\$13,792 75	\$27,109 00
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MANUFACTURES—MISCELLANEOUS—Continued.

Lead and Lead Shot.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	1	308	70	\$42,839 70	.....	15,350 tons lead.
Philadelphia, . . .	3	300	34	29,212 18	.....	2,630 tons lead and 1,526,195 lbs shot.
	4	304	104	\$72,051 88	17,980 tons lead and 1,526,295 pounds shot.

Lightning Rods.

Allegheny,	1	200	8	\$3,000 00	\$20,000 00	
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Locomotives.

Allegheny,	2	303	701	\$396,855 32	\$343,223 00	80 locomotives.
Lackawanna, . . .	1	300	967	527,088 87	1,447,550 00	
Philadelphia, . . .	2	285	2,936	1,945,266 63	6,716,780 48	740 tons grate bars and sash mounts.
	5	296	4,604	\$2,869,210 82	\$9,007,553 48	89 locomotives and 740 tons castings.

Locks and Safes.

Allegheny,	1	300	9	\$4,026 26	\$9,531 20	6,095½ dozen locks.
Lancaster,	2	246	33	12,366 37	26,500 00	
Northampton, . . .	1	233	33	7,152 00	13,500 00	
Philadelphia, . . .	4	305	197	108,835 61	233,766 66	
York,	1	250	50	18,050 00	35,000 00	
	9	267	322	\$150,430 24	\$318,297 86	6,095½ dozen locks.

Malleable Iron.

Allegheny,	1	305	119	\$62,077 50		3,000 tons.
Erie,	1	300	130	61,613 47	\$150,000 00	
Philadelphia, . . .	1	300	7	2,700 25	6,000 00	
	3	301	256	\$126,391 22	\$156,000 00	3,000 tons.

Mantles.

Erie,	1	306	3	\$1,902 50	\$5,387 65	
Philadelphia, . . .	2	300	31	21,800 00	50,000 00	
	3	303	34	\$23,702 50	\$55,387 65	

Matches.

Berks,	1	286	15	\$1,880 00	.....	14,300 gross.
Philadelphia, . . .	1	300	60	11,500 00	.....	50,000 gross.
York,	1	156	1	.....	.....	500 gross.
	3	247	76	\$13,380 00	.....	64,800 gross.

MANUFACTURERS—MISCELLANEOUS—Continued.

Maltsters.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	3	237	11	\$4,800 00	.....	93,000 bushels malt.
Erie,	12	237	35	17,500 00	.....	350,000 bushels malt.
Lancaster,	1	210	10	3,000 00	.....	50,000 bushels malt.
Northampton, . . .	1	228	11	3,673 35	.....	61,100 bushels malt.
Philadelphia, . . .	4	298	75	38,545 00	.....	525,000 bushels malt.
York,	1	225	7	1,875 00	.....	20,000 bushels malt.
	12	239	149	\$69,393 35	.....	1,099,100 bushels malt.

Morocco and other Leather.

Delaware,	1	200	15	\$4,000 00	\$23,000 00
Philadelphia, . . .	37	298	2,013	1,148,229 30	5,231,407 44
	38	249	2,028	\$1,152,229 30	\$5,254,407 44

Nails, Spikes, &c.

(Not included in rolling-mills.)

Allegheny,	1	300	23	\$9,000 00	\$100,000 00
Philadelphia, . . .	1	225	2	318 05	1,245 15
	2	262	25	\$9,318 05	\$101,245 15

Nitro-Glycerine and Torpedoes.

McKean,	2	262	46	\$41,237 47	363,909 pounds.
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Oil Cloths.

Delaware,	1	400	25	\$14,354 06	\$49,000 00
Philadelphia, . . .	2	319	500	256,638 95	1,392,216 89
	3	359	525	\$270,993 01	\$1,441,216 89

Oils and Lubricants.

Allegheny,	3	223	10	\$5,727 00	5,923 barrels.
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Paints.

Allegheny,	5	270	45	\$30,700 00	\$141,000 00	500,000 pounds paints, and 100,000 gallons varnish, &c.
Carbon,	1	300	65	23,398 04	..	7,018,000 pounds metallic paint.
Columbia,	1	104	3	900 00	15,000 00	
Cumberland,	1	180	4	700 00	.....	400,000 pounds yellow ochre.
Lawrence,	1	300	5	3,000 00	.....	350,000 pounds French umber filler.
Luzerne,	1	200	10	2,600 00	.....	5 000,000 pounds yellow & brown ochre.
Lycoming,	1	306	6	5,700 00	.....	4,100 barrels ready mixed asphaltum liquid paints.
Philadelphia, . . .	1	313	30	20,190 25	162,625 52	
York,	1	...	1	638 00	3,991 16	
	13	246	169	\$87,826 29	\$322,616 68	16,868,000 lbs., 100,000 gal. varnish, and 4,100 barrels asphaltum liquid paint.

MANUFACTURERS—MISCELLANEOUS—Continued.

Paper, Strawboards, &c.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Beaver,	1	300	14	\$7,860 00		1,560,000 pounds.
Berks,	1	300	25	6,000 00		500,000 pounds.
Blair,	1	232	100	36,681 44		3,837,674 pounds.
Bucks,	1	308	56	23,400 00		2,464,000 pounds.
Chester,	21	261	178	58,195 87		8,326,500 pounds.
Clinton,	1	300	90	30,000 00		2,400,000 pounds.
Columbia,	1	6	6	12 00		9,000 pounds.
Cumberland,	4	275	237	68,816 57		5,590,000 pounds.
Delaware,	4	256	78	41,919 00		2,875,000 pounds.
Erie,	1	283	78	34,000 00	450,000 00	
Franklin,	2	234	45	9,597 35		1,537,560 pounds.
Indiana,	2	170	22	4,753 90		1,320,000 pounds.
Lancaster,	1	300	21	8,000 00		1,000,000 pounds.
Luzerne,	2	291	34	15,474 90		1,987,729 pounds.
Lycoming,	1	180	8	1,662 12		167,000 pounds.
Monroe,	1	300	35	10,500 00		1,500,000 pounds.
Montgomery,	5	297	155	75,668 80		7,615,000 pounds.
Northampton,	1	300	3	1,511 00		2,550,000 pounds.
Philadelphia,	11	295	815	307,407 67	854,241 65	20,110,000 pounds.
Washington,	1	90	34	4,500 00		600,000 pounds.
Westmoreland,	2	285	38	13,741 19		3,135,428 pounds.
York,	2	300	205	58,800 00		8,100,000 pounds.
	67	268	2,277	\$818,441 81	\$1,304,241 65	48,234,891 pounds.

Paper Hangings.

Bucks,	1	270	65	\$27,631 18	\$163,641 04	
Philadelphia,	4	281	295	121,294 17	777,223 02	
	5	275	360	\$148,925 35	\$940,864 06	

Pens, Steel.

Philadelphia,	1	304	30	\$10,000 00		90,000 gross.
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Pianos, Organs, and Musical Instruments.

Adams,	1	100	3	\$880 00		
Erie,	3	300	126	\$83,677 57	263,382 75	16 pipe organs.
Lebanon,	1	290	2	417 00	1,920 00	
Northampton,	1	300	6	4,000 00	6,700 00	Guitars.
Northumberland,	1	310	15	3,300 00	12,000 00	
Philadelphia,	6	300	177	97,000 00	249,600 00	
York,	1	309	52	25,580 00	48,988 00	
	14	273	299	\$213,974 57	\$523,470 75	16 pipe organs.

Pipes and Tubes, Iron.

Berks,	1	223	673	\$211,094 75		15,865 gross tons.
Dauphin,	1	300	700	250,000 00		37,500 gross tons.
Lehigh,	1	291	11	3,678 94	\$38,015 70	
Philadelphia,	2	263	636	287,121 65	1,321,511 60	
	5	270	2,020	\$751,895 34	\$1,359,527 30	53,365 gross tons.

MANUFACTURES—MISCELLANEOUS—Continued.

Planing Mills.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	21	284	487	\$269,262 63	\$906,341 42	1,150,000 feet lumber.
Armstrong,	4	232	52	25,850 00	128,000 00	250,000 feet lumber.
Beaver,	6	266	82	33,990 84	118,256 00	
Berks,	3	302	83	34,307 80	120,594 82	
Blair,	5	261	225	71,805 00	231,000 00	1,200,000 feet lumber.
Bradford,	7	178	34	10,166 96	30,000 00	275,000 feet lumber.
Bucks,	2	300	24	7,659 96	34,521 64	
Butler,	1	150	4		1,400 00	
Cambria,	3	292	47	19,300 00	59,000 00	
Carbon,	1	250	5	1,000 00	2,000 00	
Centre,	2	300	53	31,500 00	75,000 00	3,000,000 feet lumber.
Chester,	3	202	16	5,625 00	19,600 00	
Clearfield,	3	297	28	13,518 50	28,222 76	1,500,000 feet lumber.
Clinton,	3	270	99	28,186 64	84,567 21	4,000,000 feet lumber.
Columbia,	3	282	45	27,500 00	62,000 00	
Crawford,	5	278	50	23,204 34	1,535,670 00	1,700,000 feet lumber.
Cumberland,	2	245	11	3,000 00	25,000 00	125,000 feet lumber.
Dauphin,	5	298	95	40,786 00	212,000 00	
Delaware,	4	239	41	18,000 00	61,995 65	
Elk,	6	217	64	20,330 00	38,800 00	2,300,000 feet lumber.
Fayette,	5	270	115	35,032 90	77,145 28	50,000 feet lumber.
Franklin,	1	308	35	9,000 00	45,000 00	
Greene,	4	225	17	4,450 00	11,000 00	40,000 feet lumber.
Huntingdon,	1	308	28	12,044 88	62,006 10	
Indiana,	5	257	25	8,894 00	38,194 00	135,000 feet lumber.
Jefferson,	2	293	12	5,300 00		1,700,000 feet lumber.
Juniata,	1	100	2	70 00	1,400 00	
Lackawanna,	2	303	51	21,019 83	72,012 58	
Lancaster,	5	284	376	33,256 54	81,500 00	366,000 feet lumber.
Lawrence,	2	275	10	2,500 00	9,000 00	
Lebanon,	2	225	13	4,400 00	8,750 00	335,000 feet lumber.
Lehigh,	4	261	61	17,704 37	71,498 98	
Luzerne,	6	254	51	25,627 08	63,500 00	300,000 feet lumber.
Lycoming,	3	261	376	137,858 10	410,809 91	
McKean,	5	240	49	11,904 81	26,909 83	726,500 feet lumber.
Mercer,	6	225	88	39,850 00	255,000 00	1,100,000 feet lumber.
Montgomery,	5	279	51	20,326 15	74,000 00	144,000 feet lumber.
Northampton,	5	295	72	30,942 26	90,005 74	1,500,000 feet lumber.
Northumberland,	2	306	115	43,767 92	282,846 31	
Perry,	1	283	20	9,000 00		
Philadelphia,	15	273	462	250,959 90	607,184 43	5,142,000 feet lumber.
Potter,	2	275	7	800 00		1,060,000 feet lumber.
Schuylkill,	2	231	23	11,350 00	42,000 00	
Snyder,	1	130	6	1,000 00	5,000 00	
Somerset,	10	200	49	12,825 62	25,570 00	450,000 feet lumber.
Susquehanna,	1	280	1	175 00		200,000 feet lumber.
Tioga,	3	276	53	20,517 89	12,000 00	400,000 feet lumber.
Venango,	1	300	7	3,300 00	9,800 00	
Warren,	3	265	24	10,707 50	30,000 00	1,100,000 feet lumber.
Washington,	3	213	32	9,288 00	9,000 00	100,000 feet lumber.
Wayne,	2	250	13	4,500 00	25,500 00	
Westmoreland,	6	261	72	32,647 21	131,041 42	
Wyoming,	3	260	10	2,100 00		375,000 feet lumber.
York,	5	300	165	46,090 00	128,798 63	
	213	258	4,036	\$1,564,203 73	\$6,480,442 71	30,723,500 feet lumber.

Potters.

Allegheny,	1	260	7	\$3,360 00	\$5,835 00	
Armstrong,	1	300	6	1,400 00	5,000 00	
Beaver,	6	243	232	83,330 00	167,000 00	104,420 gallons.
Bedford,	1	110	14	1,925 00		3,000 gallons.
Berks,	2	300	4	1,000 00	3,500 00	
Cambria,	1	310	15	6,800 00	18,000 00	

MANUFACTURES—MISCELLANEOUS—Continued.

Potters—Continued.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Centre,	1	...	3	\$400 00	...	500 tiles.
Chester,	4	283	121	33,700 00	\$81,800 00	
Clearfield,	1	240	4	1 106 00	...	20,000 gallons.
Dauphin,	3	153	13	4,050 00	200 00	87,000 gallons.
Erie,	1	300	4	5,000 00	...	150,000 gallons.
Greene,	2	300	69	18,433 30	...	600,000 gallons.
Indiana,	1	150	2	260 00	2,000 00	
Jefferson,	1	200	2	377 00	1,000 00	
Lancaster,	2	250	7	1,450 00	1,500 00	70,000 crocks.
Lycoming,	1	300	2	1,000 00	5,000 00	
Philadelphia,	5	291	167	66,300 00	142,600 00	
Schuylkill,	2	300	4	500 00	1,900 00	
Union,	1	...	1	...	200 00	
Venango,	1	250	2	131 25	7,000 00	
York,	1	200	4	500 00	2,000 00	
	39	250	683	\$231,022 55	\$441,535 00	964,420 gallons, 70,000 crocks, and 500 tiles.

Powder and Fuses.

Erie,	1	208	20	\$7,600 00	...	6,933 gross safety fuses.
Lackawanna,	1	182	81	42,603 23	...	190,354 kegs powder.
Luzerne,	3	297	159	104,661 47	...	338,726 kegs powder and 41,000 boxes of squibs.
Northumberland,	1	274	4	2,849 60	...	17,623 kegs powder.
Schuylkill,	3	267	175	109,286 16	\$219,288 30	9,060 kegs powder, 4,000 cases squibs.
York,	1	260	5	2,930 41	...	2,463 kegs powder.
	10	248	444	\$269,930 87	\$219,288 30	558,166 kegs of powder, 6,933 gross safety fuses, 45,000 boxes squibs.

Pumps—Wooden.

Erie,	2	280	10	\$2,750 00	\$13,114 13	
Wyoming,	1	...	1	200 00	100 00	
	3	280	11	\$2,950 00	\$13,214 13	

Railings—Iron.

Allegheny,	1	311	35	\$20,000 00	\$65 000 00	
Erie,	1	300	3	2,500 00	6,000 00	
Philadelphia,	6	303	109	43,992 77	52 850 00	500,000 pounds.
	8	304	147	\$66,492 77	\$123,850 00	500,000 pounds.

Refrigerators.

Berks,	1	309	65	\$30 501 13	\$69,370 45	
Philadelphia,	2	307	82	36,024 00	116,000 00	
	3	308	147	\$66,525 13	\$185,370 45	

MANUFACTURERS—MISCELLANEOUS—Continued.

Rubber Goods.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Erie,	1	300	25	\$10,000 00	\$25,000 00	
Lycoming,	1	103	110	10,000 00	. . . . .	26,000 pairs rubber boots.
	2	202	135	\$20,000 00	\$25,000 00	26,000 pairs rubber boots.

Salt, Etc.

Allegheny,	3	305	52	\$27,401 31	. . . . .	37,070 barrels, and 3,729 tons of salt; 43,000 lbs. bromine, and 419 tons fertilizers.
Washington,	1	103	2	425 00	. . . . .	4,500 bushels salt.
	4	206	54	\$27,826 31		

Sash, Doors, Blinds, &c.

Allegheny,	1	310	22	\$15,000 00	\$50,000 00	
Bucks,	1	275	4	550 00	2,000 00	
Chester,	1	280	5	1,800 00	4 000 00	
Crawford,	1	250	6	2,500 00	6,000 00	
Cumberland,	1	302	13	5,000 00	15,000 00	
Dauphin,	1	275	15	5,850 00	20,000 00	
Erie,	1	300	40	22,648 93	75,000 00	
Franklin,	2	301	40	11,888 23	75,000 00	
Lackawanna,	1	290	6	3,000 00	. . . . .	450,000 feet.
Lancaster,	2	304	70	34,500 00	70,000 00	
Montgomery,	2	250	9	1,782 31	13 249 69	
Philadelphia,	11	282	256	164,174 43	425,952 29	37,000 screens and 32,000 square yards.
Schuylkill,	2	250	10	3,700 00	. . . . .	5,000,000 feet.
Somerset,	1	50	1	700 00	162 93	
Susquehanna,	1	270	3	200 00	. . . . .	50,000 feet.
Wyoming,	1		2	300 00	1,400 00	
York,	1	300	40	9,500 00	30,000 00	
	30	263	542	\$282,463 95	\$787,764 91	5,500,000 feet, 37,000 screens, and 32,000 square yards.

Scales.

Lackawanna,	1	300	3	\$1,344 00	\$6,200 00	
Philadelphia,	4	301	115	73,650 00	211,986 00	
York,	1	310	7	3,943 80	6,500 00	
	6	303	125	\$78,937 80	\$224,686 00	

Screws—Iron and Brass.

Philadelphia,	2	303	85	\$31,960 00	\$163,436 11	
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Ship-Building.

Philadelphia,	1	303	63	\$39,653 51	\$101,090 64	
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MANUFACTURERS—MISCELLANEOUS—Continued.**Shoe Blacking and Stove Polish.**

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Philadelphia, . .	2	300	92	\$25,496 00	.....	1,600,000 lbs.

Shovels, Spades, &c.

Allegheny,	1	300	80	\$65,000 00	\$200,000 00	
Beaver,	1	260	50	25,684 02		11,438 dozens.
Luzerne,	1	280	14	7,937 02	23,774 75	
Montgomery,	1	275	100	50,000 00		40,000 dozens.
Northampton, . . .	1	300	23	9,048 00	40,280 00	
Philadelphia, . . .	3	303	165	96,765 00	392,000 00	14,500 dozens.
	8	286	432	\$254,434 04	\$656,054 75	65,988 dozens.

Show Cases.

Erie,	1	300	35	\$17,500 00	\$40,000 00	
Philadelphia, . .	5	300	38	20,466 59	60,804 15	
	6	300	73	\$37,986 59	\$100,804 15	

Silver and Silver-Plated Ware.

Allegheny,	1	275	12	\$5,000 00	\$15,000 00	
Philadelphia, . . .	6	297	119	58,899 81	161,461 00	
	7	286	131	\$63,890 81	\$176,461 00	

Soaps and Candles.

Allegheny,	3	283	23	\$10,900 00	\$35,220 13	2,000,000 lbs. soap.
Philadelphia, . . .	20	280	483	245,480 99	1,726,365 00	13,185,215 lbs. soap.
Schuylkill,	3	252	15	4,120 00	5,000 00	1,100,000 lbs. soap.
	26	272	526	\$260,500 99	\$1,766,585 13	16,285,215 lbs. soap.

Springs and Axles.

Allegheny,	6	274	566	\$304,416 15	\$1,387,621 51	3,300 tons.
Bradford,	1	150	20	4,500 00	20,000 00	
Chester,	1	34	12	922 00		87 tons.
Erie,	3	269	114	44,290 00	2,000 00	2,864½ tons.
Philadelphia, . . .	10	302	820	461,549 99	952,007 06	19,070 tons, and 15,100 sets of axles.
Washington,	1	260	8	4,341 00	10,000 00	
	22	215	1,540	\$819,929 14	\$2,371,628 57	25,321½ tons, and 15,100 sets of axles.

MANUFACTURES—MISCELLANEOUS—Continued.

Spring Mattresses, &c.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Erie,	1	300	35	\$18,200 00	\$113,715 00	
Lackawanna, . . .	1	300	13	8,000 00	25,000 00	
Philadelphia, . . .	1	317	2	312 00	1,000 00	
	3	305	50	\$26,512 00	\$139,715 00	

Smelting.

Philadelphia, . . .	1	305	12	\$4,500 00	\$96,000 00	
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Stair-Rods.

Philadelphia, . . .	1	318	18	\$8,167 30	\$26,039 24	
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Sugar Refiners.

Philadelphia, . . .	7	190	641	\$232,164 53	\$1,047,868 00	144,007,149 pounds refined sugar. 1,882,680 gallons syrup.
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Surgical Splints and Elastic Goods.

Philadelphia, . .	2	306	16	\$7,276 00	\$16,450 26	
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Tanks—Wooden and Iron.

Allegheny,	1	150	102	\$15,737 50	\$84,225 22	
McKean,	2	270	5	1,900 00	5,000 00	
Warren,	2	280	27	2,104 00	6,340 00	
	5	234	134	\$19,741 50	\$96,565 22	

Tannique.

Huntingdon,	1	300	30	\$15,000 00	2,400,000 pounds.
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Textile Machinery.

Philadelphia, . . .	8	303	118	\$53,807 52	\$125,813 96	
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Tile.

Adams,	1	156	5	\$700 00	\$2,200 00	
Erie,	1	125	3	500 00	800 00	
	2	140	8	\$1,200 00	\$3,000 00	

MANUFACTURES—MISCELLANEOUS—Continued.

Tin-Ware.

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	2	300	48	\$19,000 00	\$75,000 00	
Berks,	1	300	6	2,700 00	12,000 00	
Philadelphia,	6	305	204	93,953 86	214,765 14	4,137 tons.
	9	302	258	\$115,653 86	\$301,765 14	4,137 tons.

Tools.

Allegheny,	4	269	234	\$123,236 60	\$484,961 22	
Butler,	1	300	12	5,350 00	45,000 00	
Chester,	2	190	3	365 00	7,200 00	
Delaware,	2	300	51	27,885 00	58,962 00	
Lancaster,	1	275	7	2,000 00	8,000 00	
Lycoming,	1	312	26	9,673 00	18,172 00	
McKean,	1	233	100	70,463 34	239,137 75	
Montgomery,	1	300	2	1,200 00	5,000 00	
Philadelphia,	14	304	925	570,530 53	1,348,626 81	
	27	276	1,360	\$810,703 47	\$2,215,059 78	

Toys and Traps.

Bradford,	1	300	75	\$26,000 00	\$50,000 00	
Philadelphia,	2	313	21	7,134 00	23,000 00	
Susquehanna,	1	250	60	18,750 00	40,000 00	
	4	287	156	\$51,934 00	\$113,000 00	

Type.

Philadelphia,	2	304	60	\$28,723 34	\$52,428 23	4,000 pounds.
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Umbrellas, Parasols, and Material.

Philadelphia,	12	297	1,877	\$648,759 61	\$3,190,918 92	
Susquehanna,	1	300	6	1,525 00	6,000 00	
	13	298	1,883	\$650,284 61	\$3,196,918 92	

Watches and Watch-Cases.

Philadelphia,	6	294	552	\$230,846 06	\$1,215,070 21	
Pike,	1	250	60	21,000 00	84,000 00	
	7	272	582	\$251,846 06	\$1,299,070 21	

Whips.

Philadelphia,	4	290	11	\$2,328 00	\$10,510 75	
York,	2	300	34	10,500 00	59,500 00	
	6	295	40	\$12,828 00	\$70,010 75	

MANUFACTURERS—MISCELLANEOUS—Continued.**White Lead, Litharge, Putty, &c.**

COUNTY.	Number of establishments.	Average number of days in operation.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Allegheny,	6	297	244	\$123,643 32	\$304,447 16	6,550 tons white-lead, 750 tons oil-cake, 132,100 gallons linseed oil, 52,885 gallons mixed paints, and 348,900 pounds colors in oil.
Berks,	1	300	18	18,000 00	150,000 00	White-lead, 12,485 tons; brown sugar of lead, 202 tons; and crude pyroli- genous acid, 344,326 gallons.
Philadelphia, . .	4	302	593	324,625 44	1,750,000 00	
	11	300	855	\$465,268 76	\$2,204,447 16	

Wire and Wire Goods.

Allegheny,	3	293	784	\$358,200 00	\$44,500 00	21,744 tons wire.
Beaver,	2	240	430	70,000 00	120,000 00	8,000 tons wire.
Lackawanna, . . .	1	275	2	800 00	4 000 00	
Luzerne,	1	300	5	2,550 00	8,000 00	
Northampton, . .	2	241	192	92,162 79		7,545½ tons wire.
Northumberland, .	1	300	6	4 000 00	11,000 00	
Philadelphia, . . .	4	304	139	53,531 83	364,300 00	1,000 tons wire.
Schuylkill,	2	251	17	5,699 65	24,553 89	
	16	275	1,575	\$586,944 27	\$576,353 89	38,289½ tons wire.

Wooden Ware.

Erie,	4	296	179	\$52,349 25	\$217 229 53	300 gross bay-wood smoking-pipes.
Lancaster,	1	300	2	600 00	2,000 00	
Lebanon,	1	300	30	6,500 00	18,000 00	
Lycoming,	1	62	13	1,365 00		
McKean,	1	267	7	3,738 00	25,000 00	
Philadelphia, . . .	5	285	104	54,092 00	190,394 50	
Warren,	1	280	37	14,000 00	50,000 00	
Wayne,	1	300	20	8,000 00	20,000 00	
York,	2		4		2,702 75	
	17	261	396	\$140,644 25	\$525,326 28	300 gross smoking-pipes.

Wringers, Washing Machines, &c.

Erie,	2	303	143	\$53,377 18	\$343,041 89	25,000 mops.
Lehigh,	1	300	1		240 00	
Philadelphia, . . .	2	40	3	65 00	1,963 50	
York,	1	250	4	1,450 00		3,000 washing-machines.
	6	223	151	\$54,892 18	\$345,245 39	25,000 mops. 3,000 washing-machines.

Zinc and Spelter.

Lehigh,	2	325	157	\$78,000 00		4,500,000 pounds spelter. 5,000,000 pounds oxide.
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MANUFACTURES—MISCELLANEOUS—Continued.

Recapitulation.

INDUSTRIES.	Number of establishments.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Agricultural implements, .	55	1,656	\$706,897 19	\$2,046,661 05	40,473.
Air-brakes,	1	512	420,000 00	1,200,000 00	
Axes, saws, etc.,	11	974	446,525 94	723,217 33	6,203 909 pounds saws, steel. 36,990 doz. axes and edge tools.
Baskets,	3	8	1,660 00	6,748 00	
Bath-tubs and boilers, . .	3	42	18,628 71	100,000 00	
Belts and hose,	7	82	45,030 87	427,140 44	
Bobbins and spools,	4	22	6,140 00	16,000 00	
Bolts and nuts,	17	1,492	580,742 07	1,535,333 43	6,982 tons.
Bone and pearl goods, . . .	2	154	47,826 56	83,000 00	
Boots and shoes,	74	4 551	1,923,099 20	6,966,927 80	
Box manufactures and boat builders,	14	293	105,630 23	107,718 00	20 boats & barges, 152,755 boxes, 6,939,000 box shooks, and 9,018,000 feet of lumber.
Brass manufactures,	8	501	280,619 95	659,284 30	39,800 pounds.
Bridge (iron) builders, . .	7	1,292	698,314 39	594,235 80	22,456 tons.
Bricks, common,	160	4,094	1,190,244 11		292,512,740 bricks.
Bricks, fire and terra cotta,	40	1,729	664,994 13	463,364 13	53,695,700 bricks, fire.
Britannia ware, etc.,	4	110	44,703 06	139,086 96	
Brooms,	6	83	93,964 90	77,558 70	190,972.
Brushes and brush-blocks, .	23	569	169,907 62	417,194 34	10,000 pounds curled hair. 36,000 brushes.
Burr-mill stones,	1	3	1,500 00	4,250 00	
Buttons,	6	172	53,872 75	123,000 00	
Carriages and wagons, . . .	56	1,138	545,256 60	1,323,049 50	
Cars, railroad car wheels, &c.	14	4,553	1,234,794 93	6,370,889 57	
Chemicals,	3	369	173,016 03		
Chains,	10	299	75,973 35	117,700 00	3,237 tons.
Cigars,	44	1,846	654,415 97		75,074 780.
Clothes-pins and shoe-pegs, .	5	116	25,030 00	14,704 00	54,000 bundles clothes-pins. 39,650 bushels shoe-pegs.
Coopers,	16	321	148,191 63	478,692 00	132,000 barrels. 321,935 kegs.
Coffins and caskets,	4	302	156,152 32	441,233 19	
Combs,	4	73	21,925 83	61,382 23	
Copper,	2	116	100,555 44	175,000 00	1,267 tons.
Cordage, rope, twine, etc., .	17	1,152	298,338 97	2,709,420 00	
Corks,	7	247	63,506 94	480,000 00	
Crucible,	4	98	47,781 96	185,000 00	
Cutlery,	2	105	38,200 00	104,500 00	
Emery & grinding mach'y, .	2	53	29,801 00	237,858 99	
Envelopes,	3	152	63,515 00	296,000 00	
Fancy leather goods,	3	493	133,744 00	458,507 00	
Files,	4	579	205,515 43	574,211 26	
Fire arms,	2	5	1,240 00	2,525 00	1,500 rifle barrels.
Furniture,	72	2,941	1,323,167 69	3,799,519 78	
Gas meters, tanks, etc., . .	5	303	120,892 79	347,028 82	
Goldbeaters,	2	223	101,600 00	300,000 00	
Glass sand,	4	94	34,200 00		44 436 tons.
Glue,	3	470	176,600 09	1,500,000 00	150 barrels. 30,000 pounds.
Hair cloth,	2	50	19,750 00	70,000 00	
Hair-pins,	1	11	3,250 00		25 000,000.
Hardware,	19	1,953	862,149 21	1,749,690 97	1,500 tons.
Harness, trunks, etc., . . .	23	231	103,637 82	390,537 89	
Hosiery needles,	1	20	3,000 00		250 000.
Hubs, spokes, etc.,	38	498	200,718 31	634,073 63	756,650 spokes and hubs.
Lasts,	2	25	13,792 75	27,109 00	
Lead and lead shot,	4	104	72,051 88		17,980 tons lead. 1,526,295 pounds shot.
Lightning rods,	1	8	3,000 00	20,000 00	
Locomotives,	5	4,604	2,869,210 82	9,007,553 48	80 locomotives.
Locks and safes,	9	322	150,430 24	318,297 86	6 095½ dozen locks.
Malleable iron,	3	256	126,391 22	156,000 00	3,000 tons.
Mantles,	3	34	23,702 50	55,387 65	

MANUFACTURES—MISCELLANEOUS—Continued.

Recapitulation—Continued.

INDUSTRIES.	Number of establishments.	Total number of persons employed.	Total amount paid in wages during the year.	Value of annual product.	Amount of goods manufactured, not otherwise accounted for.
Matches,	3	76	\$13,380 00	.....	64 800 gross.
Maltsters,	12	149	69,393 35	.....	1,099,100 bushels.
Morocco and other leather,	38	2,028	1,152,229 30	\$5,254,407 44	
Nails, spikes, etc.,	12	25	1,218 05	101,245 15	
Nitro glycerine, etc.,	2	46	41,237 47	.....	368,909 pounds.
Oil cloths,	3	525	270,993 01	1,441,216 89	
Oils and lubricants,	3	10	5,727 00	.....	5,923 barrels.
Paints,	13	169	87,826 29	322,616 68	272,200 gallons.
					16,863,000 pounds.
					48,284,891 pounds.
Paper strawboard, etc.,	67	2,277	818,441 81	1,304,241 65	
Paper hangings,	5	360	143,925 35	940,864 06	
Pens, steel,	1	30	10,000 00	.....	90,000.
Pianos, organs, etc.,	14	299	213,974 57	523,470 75	
Pipes and tubes iron,	5	2,020	751,895 34	1,359,527 30	53,365 tons.
Planing-mills,	213	4,036	1,564,203 73	6 480,442 71	30,723,500 feet lumber.
Potters,	39	683	231,023 55	441,535 00	
Powder and fuses,	10	444	269,930 87	219,288 30	558,166 kegs.
Pumps, wooden,	3	11	2,950 00	13,214 13	
Railings, iron,	8	147	66,492 77	123,850 00	500,000 pounds.
Refrigerators,	3	147	66,525 13	185,370 45	
Rubber goods,	2	135	20,000 00	25,000 00	26,000 pairs rubber boots.
Salt, etc.,	4	54	27,826 31	.....
Sash, doors, blinds,	30	542	282,463 95	787,764 91	
Scales,	6	125	73,937 80	224,686 00	
Screw, iron and brass,	2	85	31,960 00	163,436 11	
Shlp buildings,	1	68	39,655 51	101,370 64	
Shoe blackening, etc.,	2	92	25,496 00	.....	1,600,000 pounds.
Shovels, spades, etc.,	8	432	254,434 04	646,054 75	65,983 dozen.
Show cases,	6	73	37,986 59	100,804 15	
Silverware, etc.,	7	131	63,890 81	176,461 00	
Soaps and candles,	26	526	260,500 99	1,766,585 13	16,285,215 pounds.
Springs and axles,	22	1,540	819,929 14	2 371,628 57	15,100 set of axles.
					25,321½ tons.
Spring mattresses, etc.,	3	50	26,512 00	139,715 00	
Smelting,	1	12	4,500 00	96,000 00	
Stair rods,	1	18	8,167 30	26,039 24	
Sugar refiners,	7	641	282,164 53	1,047,868 00	1,882,680 gallons syrup.
					144,007,149 pound refine sugar.
Surgical splints, etc.,	2	16	7,276 00	16,450 26	
Tanks, wooden and iron,	5	134	19,741 50	95,565 22	
Tannique,	1	30	15,000 00	.....	2,400,000 pounds.
Textile machinery,	8	118	58,807 52	125,813 96	
Tile,	2	8	1,200 00	3,000 00	
Tinware,	9	353	115,653 86	301,765 14	4,137 tons.
Tools,	27	1,260	810,703 47	2,215,059 78	
Toys and traps,	4	156	51,934 00	113,000 00	
Type,	2	60	28,723 34	52,428 23	4,000 pounds.
Umbrellas, etc.,	13	1,883	630,284 61	3,196,918 92	
Watches and watch cases,	7	582	251,846 06	1,299,070 21	
Whips,	6	45	12,828 00	70,010 75	
White lead, etc.,	11	855	466,268 76	2,204,447 16	
Wire and wire goods,	16	1,517	586,944 27	576,353 89	38,289½ tons.
Woodenware,	17	396	140,644 25	525,326 28	300 gross smoke pipes.
Wringers, etc.,	6	151	54,892 18	345,245 39	25,000 mops.
					3,000 washing-machines.
Zinc and spelter, †.	2	157	78,000 00	.....	9,500,000 pounds.
	1,455	68,338	\$29,131,363 59	\$35,631,476 30	

STREET PASSENGER RAILWAYS.

A STATEMENT showing the number of lines operated, average number of hours operated each day, average number of persons employed, and the total amount paid in wages during the year.

LOCATION OF LINES.	Number of lines operated.	Average number of hours operated each day.	Average number of persons employed.	Total amount paid in wages during the year.
Pittsburgh,	9	18 $\frac{1}{4}$	565	\$323,189 05
Reading,	2	16	26	11,320 94
Johnstown,	1	13	16	6,972 27
Harrisburg,	1	17	14	9,409 84
Chester,	1	17	23	9,000 00
Erie,	1	15	11	6,647 53
Scranton,	1	16	40	15,620 00
Wilkes-Barre,	1	14	8	2,094 00
Pittston,	1	15	3	1,200 00
Allentown,	1	16	3	4,258 50
Williamsport,	1	15 $\frac{1}{2}$	13	5,828 00
Stroudsburg,	1	17	7	2,175 00
Easton,	1	15	8	2,646 60
Philadelphia,	11	20 $\frac{1}{2}$	3,637	1,949,721 62
Total,	33	16 $\frac{2}{3}$	4,374	\$2,350,083 35

EMPLOYÉS.

AN EXHIBIT of the number of *Employés* engaged in the various industries in the State, compiled from returns made to the Bureau for the year ending December 31, 1883:

Coal—Anthracite.

Miners,	} Inside employees.	22,052
Miners' laborers,		11 841
Company men,		6,778
Drivers and runners,		6,021
Door-boys,		2,490
All others,	} Outside employees.	3 751
Engineers,		1,753
Firemen,		1,348
All other mechanics,		2 034
Company laborers,		9,724
Slate-pickers,		15,369
All others,		4,147
Total,		87,303

Coal—Bituminous.

Miners,	31,986
Inside laborers,	1,539
Outside laborers,	3,121
Mule-drivers,	2,670
Blacksmiths and carpenters,	874
Overseers and clerks,	939
Boys,	1,691
Coke-oven employees,	2,338
All others,	388
Total,	45,454

Blast-Furnaces.

Foundrymen,	140
Keepers and helpers,	1,133
Fillers,	2,025
Cindermen, barrowmen, and hot-blast men,	1,483
Metal carriers and laborers,	4,207
Engineers and firemen,	651
Other mechanics,	717
All others,	2,676
Total,	13,032

Bloomaries.

Run-out men and helpers,	40
Forgemen and helpers,	220
Hammermen and helpers,	35
Engineers, blacksmiths, and carpenters,	27
Laborers,	88
Boys,	5
All others,	28
Total,	43

Bessemer Steel.

Converting department,	1,453
Blooming department,	461
Rail department,	1,880
Gas-producing department,	100
Steam-producing department,	300
Forge department,	110
Locomotive department,	2,293
Miscellaneous department,	500
Not classified,	405
Total,	7,502

Crucible Steel.

Heaters,	100
Rollers and helpers,	130
Steel-melters and helpers,	61
Hammermen and helpers,	80
Engineers, blacksmiths, carpenters, mill-wrights, and mechanics,	370
Straighteners, shearmen, helpers, firemen, &c.,	1,490
Laborers,	1,024
Boys,	200
Not classified,	2 014
Total,	5,379

Rolling-Mills.

Puddlers and helpers,	7,968
Heaters,	1,095
Rollers,	846
Roll-hands,	1,702
Nailers and feeders,	1,244
Engineers, mill-wrights, blacksmiths, carpenters, and mechanics,	1,370
Laborers,	13 819
Boys,	1,813
All others,	6,646
Total,	36,503

Glass—Window.

Blowers,	175
Gatherers,	175
Flatteners, cutters, and assorters,	120
Employees in flattening department,	86
Batch-mixers,	20
Teazers and helpers,	92
Potmakers and assistants,	40
Laborers,	104
Not classified,	795
Total,	1,607

Glass—Flint and Green.

Pressers,	230
Handlers, finishers, and foot-finishers, . .	320
Blowers—mold, chimney, and other, . . .	500
Gatherers,	465
Mixers,	35
Teazers,	45
Cutters, grinders, and stopper-makers, . .	150
Laborers,	400
Boys—snapping, carrying, and other, . . .	1,931
Not classified,	2,534
Total,	6,660

Lumber.

Sawyers,	331
Setters, edgers, and filers,	331
Lath-sawyers and bundlers,	237
Laborers,	2,843
Boys,	240
Not classified,	1,538
Total,	5,520

Iron-Foundries and Machine-Shops.

Molders,	2,688
Machinists,	1,684
Pattern-makers and carpenters,	770
Blacksmiths and helpers,	645
Boiler-makers and helpers,	330
Laborers,	2,125
Boys,	1,546
Not classified,	2,365
Total,	12,153

Railroads.

Master mechanics,	54
General foremen,	34
Foremen,	319
Road foreman of engines,	29
Clerks in all departments,	2,777
Telegraph operators,	1,743
Passenger and freight agents,	1,777
Depot and train-masters and dispatchers, .	562
Conductors—passenger and freight,	2,659
Brakemen,	8,827
Baggage-masters and porters,	841
Locomotive engineers,	2,515
Locomotive firemen,	2,643
Stationary enginemen and firemen,	258
Distributing and yard enginemen and firemen,	1,470
Blacksmiths and helpers,	2,316
Machinists and helpers,	3,113
Tinners, copper-smiths, and helpers, . . .	377
Carpenters,	4,903
Painters,	753
Trackmen and laborers,	22,357

Masons and quarrymen,	709
Apprentices,	590
Not classified,	14,110
Total,	75,742

Miscellaneous.

Foremen,	1,417
Skilled workmen,	41,001
Unskilled workmen,	16,495
Boys,	3,587
Not classified,	5,838
Total,	68,338

Tanneries.

Tanners,	350
Beam-hands,	797
Yard-hands,	410
Curriers, splitters, and shavers,	350
Scourers, blackers, and finishers,	400
Laborers,	512
Not classified,	2,268
Total,	5,087

Textile Fabrics.

Overseers,	1,496
Skilled workmen,	13,744
Unskilled workmen,	6,817
Boys under sixteen years of age,	5,311
Women and girls over fifteen years of age,	27,347
Girls under fifteen years,	4,295
Engineers,	383
Blacksmiths,	80
Carpenters,	200
Laborers,	890
Not classified,	4,390
Total,	64,358

Iron Ore.

Miners,	338
Miners' helpers,	40
Foremen,	20
Engineers,	35
Blacksmiths,	14
Laborers and boys,	423
Not classified,	50
Total,	920

Liquors—Malt and Distilled.

Breweries, employees,	2,396
Distillers, employees,	289

Milling—Flour and Grist.

Millers and other employees,	4,728
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Slate.	
Quarrymen,	350
Sawyers, planers, splitters, dressers, and blockmakers,	799
Engineers,	36
Laborers,	939
Not classified,	240
Total,	<u>2,364</u>

Street Railways.	
Superintendents and assistants,	46
Stable foremen, hostlers, and feeders, . . .	723
Conductors,	1,142

Drivers,	1,123
Car-housemen,	113
Teamsters,	32
Harness-makers,	24
Collectors,	6
Watchmen,	69
Blacksmiths,	109
Not classified,	435

Total,	<u>3,827</u>
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Grand total,	<u>450,205</u>
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AN EXHIBIT of the average daily wages paid to employ  s of various occupations throughout the State from 1875 to 1884, compiled from manufacturers' and operators' returns to the Bureau.

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
<i>Anthracite coal.</i>									
Miners on contract,	\$3 00	\$2 97	\$1 91	\$1 97	\$2 09	\$2 71	\$2 52	\$2 52	\$2 70
Miners on wages,	2 40	2 33	1 78	1 66	1 63	1 88	2 05	2 05	2 00
Laborers, inside,	2 00	1 82	1 69	1 38	1 37	1 62	1 72	1 72	1 78
Laborers, outside,	1 65	1 56	1 47	1 21	1 19	1 30	1 27	1 27	1 40
Platform men and others,	1 66	1 66	1 51	1 21		1 31	1 29	1 29	1 40
Slate pickers, boss,	1 40	1 29	1 06		1 05	1 44	1 37	1 37	1 55
Slate pickers, boys,	60	61	53	51	56	57	65	65	64
Door and fan boys,	1 05	1 03	93	61	61	77	75	75	45
Drivers and runners,	1 64	1 63	1 62	1 30	1 19	1 26	1 29	1 29	1 43
Engineers,	2 50	2 28	2 15	1 68	1 65	1 80	1 78	1 78	1 88
Firemen,				1 26		1 44	1 40	1 40	1 58
Blacksmiths,	2 50	2 28	2 15		1 65	1 80	1 81	1 81	1 91
Carpenters,	2 50	2 28	2 15		1 65	1 80	1 83	1 83	1 88
Other employees,					1 66	1 66	1 66	1 66	1 75
<i>Bituminous coal.</i>									
Miners,	2 47	2 59	1 65	1 88	1 74	2 25	2 16	2 16	2 05
Laborers, inside,	1 90	1 71	1 64	1 47	1 42	1 69	1 81	1 81	1 82
Laborers, outside,	1 76	1 52	1 34	1 47	1 42	1 46	1 63	1 63	1 62
Mule drivers,	1 81	1 61	1 57	1 46	1 41	1 63	1 80	1 80	1 80
Blacksmiths,	2 29	2 15	1 80	1 91	1 75	1 96	2 16	2 16	2 09
Carpenters,	2 29	2 15	1 80	1 90	1 75	1 84	2 06	2 06	1 93
Mining overseers,	3 04	2 84	2 40	2 64	2 56	2 63	2 60	2 60	2 88
Clerks,				2 38		1 93	2 11	2 11	2 31
Coke-oven chargers,				1 60		1 46	1 76	1 76	1 74
Coke-oven drawers,				1 60	1 55	1 44	1 74	1 74	1 68
Boys,	97	87	90	77	68	79	84	84	78
<i>Blast-furnaces.</i>									
Foundrymen,				2 11	2 48	2 70	2 92	2 92	3 09
Keepers,				1 40	1 50	1 56	1 75	1 75	1 81
Keepers' helpers,				1 15	1 40	1 35	1 55	1 55	1 46
Fillers,				1 15	1 61	1 33	1 63	1 63	1 39
Cinder-men,				1 16	1 32	1 26	1 43	1 43	1 34
Barrowmen,						1 18	1 31	1 31	1 38
Hot-blast man,				1 26		1 45	1 62	1 62	1 63
Weighmen,				1 40		1 39	1 55	1 55	1 43
Metal carriers,				1 25	1 41	1 41	1 68	1 68	1 67
Engineers,				1 24	1 60	1 67	1 69	1 69	1 75
Firemen,				1 06	1 38	1 30	1 52	1 52	1 38
Blacksmiths,				1 34	1 37	1 63	1 80	1 80	1 79
Blacksmiths' helpers,				1 08		1 16	1 25	1 25	1 23
Carpenters,				1 49	1 52	1 60	1 69	1 69	1 68
Laborers,				96	1 19	1 05	1 15	1 15	1 18
Foremen,				2 00		2 11	2 06	2 06	1 81
Other employees,				1 50	1 50	1 36	1 45	1 45	1 38
<i>Bloomaries.</i>									
Run-out men,							3 04	3 04	3 75
Forgemen,							2 81	2 81	2 59
Helpers,							1 29	1 29	1 84
Hammermen,							2 61	2 61	2 85
Hammermen's helpers,							1 23	1 23	1 25
Engineers,							1 74	1 74	1 72
Blacksmiths,							1 63	1 63	1 54
Carpenters,							1 56	1 56	1 40
Laborers,							1 10	1 10	1 09
Boys,							60	69	85
Other employees,							1 58	1 58	1 50

EASTERN DISTRICT, comprising the counties of Berks, Bucks, Chester, Columbia, Cumberland, Dauphin, Delaware, Lackawanna, Lancaster, Lebanon, Lehigh, Mifflin, Montgomery, Montour, Northampton, Northumberland, Perry, Philadelphia, and Schuylkill.

OCCUPATIONS.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
<i>Rolling-Mills.</i>											
Puddlers,	\$4 00	\$3 60	\$3 11	\$2 78	\$2 40	\$2 40	\$2 53	\$2 80	\$3 03	\$3 03	\$2 72
Puddlers' helpers,	2 25	2 00	1 57	1 51	1 35	1 27	1 32	1 40	1 60	1 60	1 45
Heaters,	5 00	4 70	4 60	3 26	3 10	3 03	3 03	4 20	3 81	3 81	3 60
Heaters' helpers,	2 35	2 30	2 25	1 71	1 50	1 55	1 55	1 60	1 50	1 50	1 79
Rollers,	5 00	4 50	4 00	3 68	3 05	3 12	2 95	4 70	4 69	4 69	4 21
Roughers,	2 50	2 50	2 45	1 88	1 75	1 60	1 57	1 89	2 56	2 56	2 36
Catchers,	2 50	2 50	2 33	1 88	2 40	1 51	1 57	1 76	2 06	2 06	1 74
Hookers,	1 90	1 80	1 75	1 23	1 80	1 15	1 22	1 20	1 25	1 25	1 15
Shearmen,			1 43	1 67	1 53	1 40	1 41	1 55	1 50	1 50	1 33
Straighteners,			1 43	1 67		1 56	1 56	1 48	1 50	1 50	1 58
Engineers,			2 54	1 87	2 25	1 72	1 90	1 90	2 00	2 00	1 75
Millwrights,							2 00	2 18	2 17	2 17	2 16
Blacksmiths,			2 24	2 06	1 82	1 73	1 71	1 75	1 96	1 96	2 06
Machinists,			2 56	2 02	2 52	2 00	2 08	2 17	2 17	2 17	2 35
Carpenters,			2 37	1 92	1 80	1 59	1 43	1 58	1 67	1 67	1 83
Nailers,							4 10		3 64	3 64	3 54
Feeders,						1 12	1 20	1 10	1 17	1 17	1 13
Firemen,				1 34		1 17	1 23	1 16	1 50	1 50	1 52
Laborers,			1 12	1 20	1 13	1 00	1 10	1 11	1 15	1 15	1 17
Boys,			75	80		57	70	63	69	69	60

WESTERN DISTRICT, comprising the counties of Allegheny, Armstrong, Beaver, Erie, Lawrence, Mercer, and Westmoreland.

OCCUPATIONS.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
<i>Rolling-Mills.</i>											
Puddlers,	\$4 75	\$4 11	\$3 60	\$3 00	\$3 30	\$3 30	\$3 30	\$3 57	\$3 59	\$3 59	\$3 59
Puddlers' helpers,	2 95	2 55	2 25	1 90	2 00	2 00	2 00	2 20	2 23	2 23	2 23
Heaters,	6 10	5 70	5 60	4 00	4 70	4 70	4 70	5 20	5 01	5 01	5 01
Heaters' helpers,	2 60	2 30	2 00	1 63	1 63	1 80	1 74	1 75	1 74	1 74	1 74
Rollers,	8 50	8 25	8 00	7 24	6 50	6 40	6 40	7 00	7 24	7 24	7 24
Roughers,	4 20	3 80	3 30	2 65	2 25	2 25	2 70	3 25	3 15	3 15	3 15
Catchers,	4 25	3 80	3 30	2 65	2 25	2 95	2 70	3 25	3 36	3 36	3 33
Hookers,	2 00	1 85	1 75	1 52	1 25	1 44	1 60	1 44	1 50	1 50	1 50
Shearmen,			1 43	1 88	1 75	1 60	1 62	1 60	1 74	1 74	1 74
Straighteners,			1 43	1 88		1 62	1 48	1 52	1 74	1 74	1 74
Engineers,			2 54	2 66	1 83	2 37	2 57	1 87	2 66	2 66	2 66
Millwrights,						3 03	2 76	2 24	2 92	2 92	2 92
Blacksmiths,			2 24	2 78	2 55	2 48	2 44	1 83	2 67	2 67	2 67
Machinists,			2 56	2 64	2 75	2 51	2 39	2 50	2 50	2 50	2 50
Carpenters,			2 37	2 33	2 25	1 76	1 87	1 61	2 16	2 16	2 16
Nailers,						6 25	6 00		8 00	8 00	8 00
Feeders,					2 00	2 12	1 50	1 27	2 00	2 00	2 00
Firemen,				1 70	1 66	1 64	1 55	1 29	1 74	1 74	1 74
Laborers,			1 12	1 28	1 25	1 12	1 27	1 14	1 31	1 31	1 31
Boys,			75	62	75	69	90	68	79	79	79

BESSEMER STEEL WORKS.

OCCUPATIONS.	1880.	1881.	1882.	1883.	OCCUPATIONS.	1880.	1881.	1882.	1883.
<i>Converting Department.</i>					<i>Rail Department—Continued.</i>				
Superintendent,		\$8 00	\$8 00	\$7 00	Hot clippers,		\$3 23	\$3 23	\$3 34
Foreman,	\$5 00	5 19	5 19	4 22	Strikers,		1 75	1 75	2 12
Blowers,	2 50	3 96	3 96	3 75	Drag-outs,	\$2 20	2 25	2 25	1 97
Metal handlers,	1 37	2 44	2 44	2 04	Hydraulic hands,		1 70	1 70	1 15
Metal wheelers,		2 72	2 72	2 41	Clean-ups,		1 60	1 60	1 45
Weighmasters,	2 00	3 18	3 18	2 30	Hot-bed hands,	2 00	2 48	2 48	3 09
Hoist, hydraulic,	1 62	2 80	2 80	1 60	Stamper,	1 37	2 55	2 55	2 58
Stockers, iron, &c.,	1 87	2 55	2 55	2 50	Cold straighteners,	4 25	3 89	3 89	5 30
Chargers,	2 12	3 88	3 88	3 00	Gaggers,	2 75	3 16	3 16	3 14
Iron melters,	3 50	4 97	4 97	4 04	Firemen,		1 60	1 60	1 60
Speigel melters,		4 93	4 93	3 85					
Speigel melters' helpers, . .		3 04	3 04	2 42	<i>Forge Department.</i>				
Iron melters' helpers, . . .	2 25	2 88	2 88	2 70	Foremen,		5 50	5 50	5 00
Cinder-men,	2 05	2 95	2 95	2 00	Heaters,	4 50	4 00	4 00	3 90
Runner hands,	1 80	3 32	3 32	2 81	Heaters' helpers,	3 55	2 80	2 80	2 42
Converter hands,	3 00	4 37	4 37	3 17	Door-hands,	1 40	1 20	1 20	90
Converter-bottom builders, .	2 30	3 00	3 00	2 65	Buggymen,	2 25	2 45	2 45	1 97
Ladle hands and pit men, . .	2 10	3 89	3 89	3 30	Hammermen,	5 00	4 00	4 00	3 50
Regulators,		1 91	1 91	2 27	Tongsmen,	2 50	2 50	2 50	2 25
Engineers,		1 83	1 83	1 89	Hookers, &c.,	2 00	2 50	2 50	2 25
					Engineers,		2 50	2 50	2 00
<i>Blooming Department.</i>					<i>Gas-Producing Department.</i>				
Foremen,		4 58	4 58	5 00	Foremen,	3 75	3 25	3 25	2 92
Heaters,	4 12	5 29	5 29	4 65	Ashmen,	1 26	1 60	1 60	1 72
Heaters' helpers,	3 50	3 13	3 13	3 00	Firemen,	1 63	1 69	1 69	1 72
Door-hands,		1 50	1 50	1 20					
Buggymen,		3 66	3 66	3 50	<i>Locomotive Department.</i>				
Markers,		1 95	1 95	1 40	Foremen,	3 25	3 26	3 26	3 94
Rollers,	2 87	4 15	4 15	4 54	Weighmasters,	2 30	1 52	1 52	2 00
Assistant rollers,	2 55	3 31	3 31	3 34	Hostlers,	90	1 34	1 34	1 50
Screwmen,	2 50	3 62	3 62	4 00	Engineers,	2 05	2 03	2 03	2 20
Catchers,		3 06	3 06	3 10	Brakemen,	1 51	1 58	1 58	1 77
Shearsmen,	2 50	2 77	2 77	2 95					
Levermen,	2 25	3 25	3 25	2 75	<i>Steam-Producing Department.</i>				
Hammermen,	3 75	3 88	3 88	3 40	Foremen,		3 12	3 12	3 90
Engineers,		1 99	1 99	2 20	Water-tenders,	1 55	1 77	1 77	2 00
Drillers,	2 00	2 26	2 26	2 64	Assistant water-tenders, . .		1 60	1 60	1 60
Chip and filers,	1 62	2 83	2 83	2 36	Monkeys,		1 30	1 30	1 30
Telegraphers,		1 93	1 93	2 14	Ashmen,	1 26	1 40	1 40	1 50
Straightening-press hands, .	1 75	1 94	1 94	1 72	Coal-heavers,		1 30	1 30	1 35
Inspectors,	1 62	2 88	2 88	2 04	Firemen,	1 63	1 52	1 52	1 75
Recorders,		2 44	2 44	2 50					
Drillsmiths,		2 70	2 70	2 50	<i>Miscellaneous Department.</i>				
Rail-loaders,	2 12	2 75	2 75	2 78	Machinists,	2 25	2 24	2 24	2 50
Engineers,		1 87	1 87	2 00	Machinists' helpers,	1 11	1 32	1 32	1 55
					Blacksmiths,	2 20	2 30	2 30	2 48
<i>Rail Department.</i>					Blacksmiths' helpers,	1 11	1 28	1 28	1 51
Superintendent,		8 66	8 66	8 00	Carpenters,	1 68	2 13	2 13	2 16
Heaters,	5 00	5 30	5 30	5 32	Foundrymen,	2 37	1 76	1 76	1 75
Heaters' helpers,	3 50	3 99	3 99	3 83	Painters,		2 00	2 00	2 10
Chargers,	2 12	3 38	3 38	3 71	Masons and bricklayers, . . .	1 95	2 34	2 34	2 83
Drawers,		3 57	3 57	3 62	Masons' helpers,	1 22	1 26	1 26	1 50
Door-hands,	1 25	1 20	1 20	1 17	Laborers,	1 12	1 32	1 32	1 25
Recorders,	2 12	2 08	2 08	2 06	Horses and carts,		2 50	2 50	2 22
Stockers,	2 00	2 15	2 15	2 07	Boys,		1 05	1 05	81
Buggymen,	2 87	3 06	3 06	3 60					
Roughers,	3 12	5 54	5 54	5 68					
Second roughers,	2 80	5 06	5 06	5 00					
Catchers,	2 90	3 87	3 87	4 89					
Extra catchers,	2 37	2 50	2 50	3 17					
Hookers,	2 62	3 47	3 47	4 32					

AVERAGE DAILY WAGES OF EMPLOYEES—Continued.

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
<i>Crucible and other Steel.</i>									
Steel melters,							\$5 57	\$5 57	\$5 50
Steel melters' helpers,							2 73	2 73	3 21
Hammermen,							3 31	3 31	4 71
Hammermen's helpers,							2 05	2 05	2 23
Engineers,							2 38	2 38	2 54
Blacksmiths,							2 47	2 47	2 46
Carpenters,							2 21	2 21	2 06
Machinists,							2 58	2 58	2 46
Millwrights,							2 58	2 58	2 90
Firemen,							1 73	1 73	1 77
Laborers,							1 39	1 39	1 30
Shearsmen, straight'rs, & bundlers,							1 78	1 78	2 20
Boys,							83	83	85
Wire drawers,							2 62	2 62	1 87
Other employees,							2 38	2 38	2 37
<i>Iron Ore.</i>									
Miners,									1 33
Miners' helpers,									1 28
Engineers,									1 37
Foremen,									1 60
Blacksmiths,									1 47
Laborers,									1 00
Boys,									52
All others,									1 26
<i>Iron Foundries.</i>									
Foremen,	\$3 63		\$4 00	\$2 62	\$2 66	\$2 65	3 15	3 15	3 45
Iron molders,	2 33	\$2 17	2 12	1 83	2 15	1 84	2 52	2 52	2 40
Machinists, (best,)	2 37	2 37	2 15	1 83	1 83	2 16	2 48	2 48	2 40
Machinists, (ordinary,)	2 12	2 01	1 78	1 50	1 67	1 61	2 22	2 22	2 00
Boiler-makers,	2 66	2 25	2 00	1 87	1 92		2 14	2 14	2 50
Riveters,	2 58	2 02	2 00	1 67	1 88		1 81	1 81	1 85
Holders-on,	1 64	1 49	1 45	1 20	1 20		1 38	1 38	1 50
Flangers,	2 83	2 54	1 80	1 84	2 47		2 31	2 31	2 30
Blacksmiths,	2 56	2 14	2 03	1 60	1 87	2 00	2 12	2 12	2 34
Blacksmiths' helpers,	1 43	1 44	1 30	1 05		1 17	1 42	1 42	1 22
Engineers,	2 40	1 73	1 65	1 43	1 56	1 52	1 74	1 74	1 77
Pattern-makers,	2 45	2 13	2 27	1 62	1 92	1 99	2 28	2 28	2 56
Carpenters,	2 45	2 13	2 27	1 33	1 54	1 59	1 98	1 98	2 10
Laborers,	1 60	1 43	1 25	1 06	1 27	1 16	1 31	1 31	1 30
Other employees,	2 02		1 36	1 56	1 41	1 63	1 89	1 89	1 70
Boys,	89	86	60	62	61	68	69	69	67
<i>Window Glass.</i>									
Foremen,					4 00	3 83	2 91	2 91	4 36
Blowers of double strength glass,						7 15	6 41	6 41	9 75
Blowers of single strength glass,					4 94	4 74	4 31	4 31	6 00
Gatherers of double strength glass,						3 49	3 52	4 52	5 22
Gatherers of single strength glass,					2 65	2 77	2 86	2 86	3 75
Flatteners,					5 00	5 05	4 38	4 38	6 22
Cutters,					5 00	5 22	4 09	4 09	4 75
Assorters of glass,						4 16	4 75	4 75	4 62
Layers-in—flattening department,						2 12	2 20	2 20	2 31
Layers-out—flattening department,						1 89	2 23	2 23	2 31
Leer-tenders—flattening department,						1 65	1 59	1 59	1 91
Batchmixers,					1 79	1 71	1 88	1 88	2 38
Lime-sifters,						1 66	1 72	1 72	2 24
Sand-sifters,						1 75	1 50	1 50	1 85
Master teasers,					3 00	3 22	3 78	3 78	4 18
Master teasers' helpers,					1 74	1 90	1 95	1 95	2 12
Teazers,					1 74	1 90	1 76	1 76	2 12
Coal-wheelers,						1 81	1 74	1 74	2 00
Pot-makers,					2 94	3 11	2 79	2 79	3 11
Pot-makers' assistants,					1 41	1 50	1 55	1 55	1 65
Glass-packers,					1 91	2 20	2 37	2 37	3 20
Glass-packers' assistants,						1 96	2 00	2 00	1 87
Laborers,					1 38	1 34	1 30	1 30	1 42
Teamsters,						1 83	1 92	1 92	2 00
Other employees,					1 59	1 69	1 46	1 46	1 57
<i>Flint and Green Glass.</i>									
Pressers, first-class,					3 66	4 08	4 36	4 36	4 00
Pressers, second-class,						3 55	3 53	3 53	3 50
Pressers, third-class,						3 02	2 85	2 85	2 72
Handlers,						4 61	4 07	4 07	4 06
Finishers,					3 60	3 50	3 35	3 35	3 03
Foot-finishers,						2 72	3 62	3 62	2 21
Mold, chimney, and other blowers,					4 02	3 82	4 08	4 08	3 44

AVERAGE DAILY WAGES OF EMPLOYEES—Continued.

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
<i>Tanneries.</i>									
Tanners,		\$1 70	\$1 58	\$1 78	\$1 55	\$1 62	\$1 45	\$1 45	\$2 80
Beam-hands,	\$1 43	1 54	1 46	1 34	1 27	1 42	1 43	1 43	1 73
Yard-hands,	1 27	1 32	1 30	1 11	1 11	1 24	1 27	1 27	1 46
Rollers and spongers,	1 42	1 48	1 33	1 25	1 27	1 34	1 37	1 37	1 47
Bark grinders,	1 37	1 20	1 13	1 06	1 06	1 07	1 23	1 23	1 30
Laborers,	1 40	1 20	1 13	1 02	1 04	1 08	1 29	1 29	1 31
Engineers,	1 45	1 57	1 62	1 48	1 28	1 49	1 49	1 49	1 83
Curriers,		1 73	1 55	1 62	1 36	1 62	1 62	1 62	1 75
Splitters,			2 75	2 50	1 77	2 03	2 03	2 03	2 05
Shavers,		2 20	2 00	1 49	1 75	2 08	2 08	2 08	3 04
Table-hand scourers,		1 50	1 40	1 25	1 30	1 36	1 36	1 36	1 40
Blacklers,		1 50	1 40	1 37	1 17	1 87	1 87	1 87	1 77
Finishers,		1 75	1 40	1 25	1 24	1 62	1 62	1 62	2 28
Other employees,	1 38	1 44	1 63	1 51	1 31	1 53	1 56	1 56	2 02
<i>Textile Fabrics.</i>									
Overseers,				2 33	2 30	2 53	2 83	2 83	2 90
Skilled workmen,				1 62	1 42	1 78	1 98	1 98	2 00
Unskilled workmen,				1 19		1 05	1 21	1 21	1 24
Boys under 16 years,				66	59	58	64	64	64
Women and girls over 15 years,				97	88	91	99	99	1 05
Girls under 15 years,				52	57	54	55	55	59
Engineers,				2 23	1 70	1 92	2 17	2 17	2 40
Blacksmiths,				2 18	1 70	1 97	2 10	2 10	2 50
Carpenters,				2 04	1 70	1 92	2 04	2 04	2 17
Laborers,				1 30		1 20	1 39	1 39	1 30
Other employees,				1 67	1 41	1 87	1 82	1 82	1 70
<i>Miscellaneous.</i>									
Foremen,					2 81	2 58	3 03	3 03	3 00
Skilled workmen,					1 91	1 82	2 08	2 08	2 25
Unskilled workmen,					1 22	1 18	1 30	1 30	1 20
Boys,					70	63	70	70	70

AVERAGE MONTHLY WAGES OF EMPLOYEES.

<i>Railroads—Conducting Transportation.</i>									
Clerks,	\$54 39	\$53 71	\$53 41	\$47 81	\$54 65	\$52 20	\$49 07	\$50 50	\$59 85
Chief telegraph operators,	134 32	91 29	101 90	103 33	65 79	69 59	94 67	108 50	94 52
Telegraph operators,	40 70	44 97	45 11	36 39	36 18	39 60	38 85	41 02	40 40
Passenger and freight agents,	54 70	47 21	50 78	46 82	43 32	41 54	45 33	43 47	50 52
Depot-masters,	61 47	61 68	72 77	45 33	69 39	71 42	73 50	83 21	67 14
General dispatcher & train-master,	96 20	89 62	83 36		79 36	90 93	104 90	103 58	87 67
Train-dispatchers,	92 39	87 31	78 39	66 06	72 65	80 00	71 83	80 18	80 60
Conductors, passenger,	81 26	78 02	72 81	78 70	68 52	70 58	73 48	78 89	72 66
Conductors, freight,	65 33	59 41	64 08	55 64	54 85	62 70	63 64	65 87	72 44
Brakemen, passenger,	48 77	45 33	44 46	41 51	37 85	42 00	46 87	46 63	44 32
Brakemen, freight,	48 77	45 33	44 31	41 51	37 85	42 00	43 19	46 21	42 89
Janitors,					32 00	31 26	32 54	31 29	30 75
Watchmen,	39 07	39 14	39 13	37 85	35 00	32 95	35 39	39 05	37 57
Baggage-masters,	49 54	44 84	45 53	41 38	43 90	48 75	47 23	49 77	49 98
Switch-tenders,	35 75	39 23	39 25	47 08	35 78	42 27	39 48	40 22	44 64
Baggage-porters,		31 98			33 00	35 33	36 80	36 55	31 94
Policemen,				45 00	43 33	50 80	46 46	48 22	47 07
Gate and flagmen,	29 38	33 66			39 00	40 16	46 44	45 73	42 60
Cleaners,			33 15	22 50	28 45	29 05	23 71	19 41	26 27
Messengers,					18 83	21 05	17 11	19 11	24 63
Weigh-masters,	43 42	47 93	50 00	50 00	42 00	47 15	54 47	56 92	47 58
Laborers,					32 44	32 44	34 52	33 29	35 90
Blacksmiths,					47 00	47 00	53 45	68 30	51 40
Blacksmith's helpers,					38 00	38 00	38 70	39 20	42 60
Warehousemen,					31 80	35 70	36 16	34 58	34 67
Cargo-inspector,					44 00	50 00	46 74	44 00	45 00
<i>Maintenance of Way.</i>									
Supervisors,		77 50	90 00		75 00	75 95	81 18	90 18	58 21
Track-foremen,	50 27	49 95	46 50	41 33	43 00	43 18	47 01	48 13	44 06
Trackmen,	34 23	32 46	29 68	26 68	26 00	29 83	31 21	32 95	30 35
Switchmen,					34 00	39 16	38 46	35 89	37 58
Conductors, work trains,					65 00	69 00	67 68	67 21	66 68
Flagmen, work trains,					31 40	33 61	38 29	39 97	43 09
Brakemen, work trains,					33 62	36 84	41 29	48 83	38 92
Pumpers,					35 50	38 64	40 93	41 90	37 60
Master carpenters,					90 00	81 69	90 89	99 23	93 30
Foremen carpenters,		67 92			65 00	64 90	67 45	72 43	66 06
Carpenters,	50 18	52 59	51 32	44 13	52 00	46 05	48 94	53 20	53 02

AVERAGE MONTHLY WAGES OF EMPLOYEES—Continued.

OCCUPATIONS.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
<i>Maintenance of Way—Continued.</i>									
Foremen, laborers,					\$39 00	\$51 66	\$44 82	\$50 22	\$52 60
Laborers,	\$35 56	\$35 84	\$32 23	\$30 87	31 20	29 90	29 83	32 52	31 92
Foremen, masons,		80 08			70 20	73 18	70 87	74 82	77 67
Masons,	54 96	63 45	56 81	45 50	55 90	56 69	56 35	61 00	62 58
Foremen, quarrymen,		60 30				56 25	43 58	65 06	51 40
Quarrymen,					31 20	32 21	34 11	37 21	19 40
Blacksmiths,					65 00	60 70	53 37	51 18	50 97
Blacksmiths' helpers,					37 44	38 64	34 79	37 05	39 81
Painters,					46 80	45 93	52 60	49 54	54 16
Telegraph repairmen,	65 00	55 36	61 54	50 47		44 33	47 84	42 68	46 59
All others,									37 43
<i>Motive Power.</i>									
Master mechanics,	146 27	137 82	120 15	92 83	114 46	123 83	117 11	154 24	133 64
General foremen,	99 75	86 91	91 12	63 44	80 91	103 00	95 43	122 74	96 71
Foremen,					75 05	73 43	76 36	80 50	77 91
Road foremen of engines,	64 29	61 83	77 66	64 02	80 82	112 62	106 16	105 97	100 51
Motive power clerks,	54 39		57 76	47 81	54 58	74 31	71 22	76 70	54 97
Engine preparers,			72 00		45 76	47 10	47 20	45 32	49 33
Assistant engine preparers,					36 76	40 86	33 60	30 33	34 78
Car inspectors,		47 97			38 10	41 52	42 09	44 69	43 78
Car cleaners,		31 92			27 00	27 63	29 90	29 74	29 25
Riggers,	50 70	42 25			51 30	50 73	51 01	50 77	50 66
Watchmen,					34 50	37 42	39 83	41 14	41 14
Machinists,	55 24	56 86	51 41	47 88	54 13	54 44	55 35	56 78	57 58
Machinists' helpers,			42 20		36 30	38 81	32 82	36 75	35 72
Machinists' apprentices,		23 53	33 80		22 88	20 30	21 65	23 05	24 69
Blacksmiths,	53 83	57 11	52 18	50 20	53 70	56 98	54 92	55 54	58 55
Blacksmiths' helpers,	40 80	41 27	34 94	27 00	33 02	36 73	35 76	35 69	36 43
Blacksmiths' apprentices,		17 94			15 00	14 34	26 61	26 64	25 18
Boiler-makers,	53 30	59 38	56 27	55 10	52 20	57 93	61 63	57 59	57 59
Boiler-makers' helpers,		20 80	41 60		34 50	37 57	43 45	34 78	34 78
Tinners,	48 19	59 63	54 63	44 60	50 40	55 00	52 85	55 13	56 99
Tinners' helpers,			39 00		28 60	31 67	33 94	32 98	28 18
Tinners' apprentices,					26 00	16 81	27 65	23 81	25 74
Coppersmiths,	53 76	67 06	62 92	56 81	53 10	61 55	58 67	61 44	56 50
Carpenters,					46 80	49 62	47 59	48 25	48 52
Carpenters' apprentices,		18 72			25 48	21 50	24 38	23 91	28 45
Laborers, carpenter shop,		39 00			28 60	33 20	31 69	31 36	33 10
Trimmers,					52 00	54 12	52 50	56 51	47 92
Painters,	53 04	55 66	51 93	47 46	43 94	47 20	50 14	52 06	51 57
Painters' apprentices,		18 98			18 20	20 50	22 98	23 43	26 62
Laborers, paint shop,					28 60	34 10	32 31	31 52	31 91
Oil distributors,					34 20	36 57	38 89	38 97	36 82
Coal men,					32 70	34 03	33 53	35 93	36 33
Grinders,					33 80	37 20	50 42	53 77	48 50
Laborers,					28 60	32 05	31 29	31 79	32 62
Engine cleaners,	33 02	37 24	35 11	29 73	33 00	32 50	34 00	30 07	34 03
Stationary engineers,	64 74	51 95	48 00	49 14	37 80	49 70	44 72	50 33	48 49
Stationary firemen,		46 28	44 20		37 80	38 19	41 08	45 46	39 51
Passenger enginemen,	83 63	80 23	82 37	83 77	88 21	85 43	89 93	93 77	83 91
Passenger firemen,	49 93	46 38	50 19	40 87	43 80	49 36	50 12	49 91	50 47
Freight enginemen,	83 63	80 23	73 41	67 00	70 00	72 80	78 55	84 27	77 89
Freight firemen,	49 93	46 33	50 37		42 00	44 33	47 82	47 17	46 43
Distributing enginemen,					70 00	71 66	72 07	70 76	79 66
Distributing firemen,					40 00	41 63	44 03	41 96	46 21
Yard enginemen,			97 20		72 00	74 20	72 94	74 15	60 57
Yard firemen,			97 20		42 80	44 89	45 51	40 62	43 08
All others,									43 16

**AVERAGE NUMBER OF HOURS WORKED, AND AVERAGE DAILY
WAGES PER DAY.**

Street Railways.

OCCUPATIONS.	Average hours worked per day.	Average daily wages 1883.
Superintendents,	12	\$2 17
Assistant superintendents,	12	2 19
Stable foremen,	13	2 02
Conductors,	14	1 80
Drivers,	14	1 57
Drivers, fare-box cars,	14	1 69
Hostlers,	12	1 35
Feeders,	11	1 57
Car-housemen,	11	1 71
Blacksmiths,	10	2 25
Teamsters,	9	1 50
Harness-makers,	10	1 91
Watchmen,	11	1 54
Fare-box collectors,	11	2 11
All others,	10	2 02

TESTIMONY OF EMPLOYEES.

The following tables are compiled from returns received from employes in various occupations throughout the State, and are replies to interrogatories made by the Bureau in relation to the hours of labor and the social condition of the working classes in general, and are followed by extracts containing extended remarks upon the several subjects presented to them under their respective headings, and which are a fair sample of the opinions of all who answered our circulars:

HOURS OF LABOR, &c.

Number of blank.	OCCUPATION.	Number of hours worked daily.	Number of hours worked on Saturday.	Number of hours that each day's working time should be reduced.	Number of days lost by sickness during the year.	The combined outlay and loss of pay on account of sickness by the whole family during the year.	Number of days unemployed in regular business.	Money loss in wages for time unemployed at regular business.	How often wages are paid.	The method of paying—cash or store goods.
11561	Beamer,	11	5	2	10	\$100 00	66	\$93 60	Monthly,	Cash.
11573	Blacksmith,	10	10	2	10	75 00	15	40 00	do.	do.
11574	Do.	10	9	2	18	75 00	36	38 00	do.	Part trade.
11576	Boiler-maker,	10.10	9.10	2	18	70 00	142	350 00	do.	Cash.
11579	Blacksmith,	10	9	4	18	30 00	60	130 00	do.	Part trade.
11585	Do.	12	12	4	7	55 00	87	119 75	do.	do.
11588	Do.	10	8	2	7	50 00	130	100 00	Semi-monthly,	Cash.
11593	Coal miner,	12	8	None,	4	20 00	63	157 00	Monthly,	do.
11595	Carpenter,	10	9½	1 on Saturday,	5	8 00	60	90 00	do.	do.
11600	Laborer,	10	10	None,	5	200 00	35	96 25	Two weeks,	Part trade.
11603	Car-builder,	10	10	None,	5	6 00	60	125 00	Weekly,	Cash.
11607	Do.	9	8	2	4	12 00	23	50 00	do.	do.
11610	Check-weighman,	10	5	2	20	155 00	20	36 00	Monthly,	Part trade.
11612	Cigar-maker,	10	7½	2	2	20 00	104	125 00	do.	Cash.
11614	Carpenter,	10	10	2	50	30 00	104	57 00	do.	Part trade.
11615	Do.	10	9	1	2	10 00	30	89 00	do.	do.
11618	Do.	10	10	1 on Saturday,	4	12 00	23	50 00	Monthly,	do.
11619	Wire-rod roller,	12	10½	4	20	155 00	20	36 00	do.	Part trade.
11621	Carpenter,	10.10	9.10	None,	2	20 00	104	57 00	do.	Cash.
11623	Cabinet-maker,	10	8½	None,	2	30 00	104	57 00	do.	Part trade.
11627	Coal miner,	10	10	2	50	10 00	30	89 00	do.	do.
11628	Mining boss,	10	8	None,	2	10 00	30	89 00	do.	do.
11629	Coal miner,	10	10	2	50	10 00	30	89 00	do.	do.
11630	Cloth-sizer,	8½	7½	None,	2	10 00	30	89 00	do.	do.

HOURS OF LABOR, &c.—Continued.

OCCUPATION.	Number of hours worked		Number of hours worked on Saturday.	Number of hours that each day's working time should be reduced.	Number of days lost by sickness during the year.	The combined outlay and loss of pay on account of sickness by the whole family during the year.		Money loss in wages for time unemployed at regular business.	How often wages are paid.	The method of paying—cash or store goods.
	daily.	12	12							
11633 Engineer,	12	12	12	Half on Saturday, 4	14	\$40 00	..	..	Monthly,	Cash.
11639 Do.	12	12	12	..	..	150 00	..	..	do.	do.
11641 Do.	12	12	12	..	..	..	..	..	do.	do.
11644 Do.	12	12	12	..	20	75 00	..	..	do.	do.
11645 Do.	12	12	12	..	..	..	..	..	do.	do.
11646 Shear boss,	10	9	9	..	6	20 00	..	..	Two weeks,	do.
11647 Locomotive engineer,	5	5	5	..	..	..	..	..	do.	do.
11658 Window-glass cutter,	12	12	12	None, 4	10	60 00	150	..	Monthly,	do.
11659 Gas and steam-fitter,	10½	8½	8½	..	..	..	..	..	Weekly,	do.
11671 Heater,	9	9	9	2	13	100 00	..	..	Two weeks,	do.
11672 Glass-blower,	10	10	10	None, 2	..	..	78	\$180 00	do.	do.
11673 Glass-presser,	10	10	10	None, 2	..	..	..	..	Weekly,	do.
11674 Glass-blower,	10	10	10	None, 2	..	80 00	150	400 00	do.	do.
11675 Do.	10	10	10	None, 2	..	..	48	..	Two weeks,	do.
11676 Do.	10	10	10	None, 2	..	..	90	..	do.	do.
11678 Do.	10	10	10	None, 2	..	..	60	208 00	Weekly,	do.
11680 Do.	10	10	10	..	5	40 00	50	100 00	do.	do.
11685 Glass-packer,	10	10	10	..	2	130 00	29	135 00	do.	do.
11687 Glass-blower,	8½	8	8	..	..	..	35	..	Two weeks,	do.
11689 Laborer,	10	10	10	..	..	..	45	200 00	Monthly,	Part trade.
11690 Hammerman,	10	10	10	..	3	25 00	..	..	do.	Cash.
11692 Iron-worker,	10	10	10	..	..	..	60	250 00	Two weeks,	do.
11694 Heater,	8	8	8	None, 2	20	150 00	60	..	do.	do.
11695 Do.	12	10	10	..	3	100 00	100	..	do.	do.
11697 Steel-worker,	8	8	8	..	18	100 00	..	..	Monthly,	do.
11698 Heater,	11	11	11	None, 2	100	500 00	70	300 00	Two weeks,	do.
11710 Laborer,	10	10	10	..	12	10 00	200	190 00	do.	Part trade.
11711 Conductor,	10	10	10	None, 2	40	200 00	..	..	Weekly,	Cash.
11719 Laborer,	9	8	8	None, 1	15	35 00	150	200 00	Monthly,	Cash or trade.
11720 Do.	10	10	10	..	30	150 00	..	..	..	..
11726 Coal miner,	10	10	10	None, 2	16	70 00	105	205 00	Monthly,	Part trade.
11729 Do.	10	10	10	..	..	..	147	300 00	do.	do.
11730 Do.	11	11	11	..	12	15 00	..	..	do.	do.
11731 Do.	11	10	10	..	6	28 00	193	..	do.	do.
11732 Do.	9	7	7	None, 2	..	35 00	120	150 00	do.	do.

Number of blanks.

11733	Do.	10	5½	2	26	10 00	120	270 00	do.	Cash.
11734	Do.	10	9	2	6	50 00	90	135 00	do.	do.
11735	Do.	10	12	2	6	8 00	160	320 00	do.	do.
11736	Do.	12	11	3	15	15 00	140	213 00	do.	Part trade.
11737	Do.	11	10	2	4	80 00	196	270 00	do.	do.
11738	Do.	10	10	3	6	50 00	30	60 00	do.	Cash.
11742	Do.	11	12	4	11	80 00	80	160 00	do.	Part trade.
11743	Do.	12	12	11	11	50 00	150	375 00	do.	do.
11744	Do.	9½	5	1½	30	70 00	50	50 00	Two weeks, Monthly,	Part trade.
11746	Do.	10	10	2	18	60 00	110	192 50	do.	Cash.
11751	Do.	10	10	2	18	60 00	180	300 00	do.	do.
11753	Do.	10	10	2	12	24 00	190	250 00	do.	Part trade.
11754	Do.	10	9	2	12	24 00	87	147 00	do.	do.
11755	Do.	10	8	1	8	35 50	100	100 00	do.	Cash.
11757	Do.	9	8	2	8	60 00	100	100 00	do.	do.
11758	Do.	10	7 to 8	3	7	25 81	38	170 00	do.	Cash.
11759	Do.	10	8	2	8	200 00	120	240 00	do.	do.
11761	Coal miner,	8	7	1	3	20 00	100	200 00	do.	Part trade.
11763	Laborer,	10	8	4	3	35 00	75	250 00	do.	do.
11765	Coal miner,	10	8	3	32	84 00	60	50 00	do.	Cash.
11767	Foreman,	10	8	2	30	40 00	100	310 00	do.	Part trade.
11768	Coal miner,	12	8	3	20	40 00	150	200 00	do.	Cash.
11769	Fire-boss,	12	8	2	40	86 00	100	150 00	do.	Part trade.
11771	Coal miner,	10	11	3	100 00	150 00	78	150 00	do.	Cash.
11772	Do.	11	11	2	100 00	300 00	158	300 00	do.	Part trade.
11775	Do.	10	10	3	30 00	150 00	100	150 00	do.	do.
11778	Do.	10	10	2	117 40	85 00	91	200 00	do.	do.
11780	Do.	12	10	4	125 00	80	80	200 00	do.	do.
11781	Do.	10	10	4	3 00	100	100	200 00	do.	Cash.
11782	Do.	11	11	3	175 00	72	120	360 00	do.	Part trade.
11783	Do.	10	8	2	50 00	12	125 00	125 00	do.	Cash.
11789	Do.	10	8	3	70 00	100	400 00	400 00	do.	do.
11792	Do.	10	11	1	10 00	150 00	202 50	202 50	Two weeks, Weekly,	do.
11793	Do.	10	9	2	150 00	85	255 00	255 00	do.	do.
11796	Do.	10	9½	1½	36	150 00	85	150 00	do.	do.
11794	Do.	8	8	2	36	150 00	85	150 00	do.	do.
11795	Check-welghman,	10	10	2	36	150 00	85	150 00	do.	do.
11797	Coal miner,	10	10	2	36	150 00	85	150 00	do.	do.
11801	Do.	10	10	2	36	150 00	85	150 00	do.	do.
11803	Do.	10	10	2	36	150 00	85	150 00	do.	do.
11805	Do.	10	10	2	36	150 00	85	150 00	do.	do.
11806	Do.	12	12	4	36	150 00	85	150 00	do.	do.
11808	Do.	12	12	4	36	150 00	85	150 00	do.	do.
11814	Do.	12	6	4	36	150 00	85	150 00	do.	do.
11817	Do.	10	9	3	36	150 00	85	150 00	do.	do.
11824	Stove-molder,	12	12	4	36	150 00	85	150 00	do.	do.
11825	Iron-molder,	10	10	2	36	150 00	85	150 00	do.	do.
11827	Do.	10	8½	2	36	150 00	85	150 00	do.	do.
11828	Do.	11	10½	3	36	150 00	85	150 00	do.	do.
11831	Do.	9	7	1	36	150 00	85	150 00	do.	do.
11831	Do.	9	7	1	36	150 00	85	150 00	do.	do.
11832	Contractor,	10	9	2	36	150 00	85	150 00	do.	do.

HOURS OF LABOR, &c.—Continued.

Number of blanks.	OCCUPATION.	Number of hours worked daily.	Number of hours worked on Saturday.	Number of hours that each days' working time should be reduced.	Number of days lost by sickness during the year.	The combined outlay and loss of pay on account of sickness by the whole family during the year.	Number of days unemployed in regular business.	Money loss in wages for time unemployed at regular business.	How often wages are paid.	The method of paying—cash or store goods.
11833	Machinist,	10.10	9	None,	6	\$30 00	18	\$48 00	Monthly,	Cash.
11834	Machinist,	10	9	None,	17	68 00	..	..	do.	do.
11840	Do.	10.15	8 $\frac{1}{2}$	..	..	..	..	..	Weekly,	do.
11841	Carpenter,	10.10	9	2	60	315 00	30	200 00	Monthly,	do.
11843	Machinist,	10	10	1 $\frac{1}{2}$	..	..	..	25 00	do.	do.
11846	Do.	10 $\frac{5}{8}$	7 $\frac{1}{2}$	1 $\frac{1}{2}$	..	..	..	..	do.	do.
11848	Naller,	10	5	None,	..	..	78	300 00	Two weeks,	do.
11849	Do.	10	5	None,	..	..	220	500 00	do.	do.
11853	Welder, pipes,	11	..	None,	3	70 00	45	225 00	do.	do.
11855	Pattern-maker,	10.10	9.10	2	6	35 00	20	60 00	do.	do.
11856	Printer,	12	10	..	..	..	..	..	Weekly,	do.
11857	Do.	12	10	..	..	..	..	..	do.	do.
11858	Naller,	10	6	None,	..	..	20	75 00	Monthly,	do.
11859	Puddler,	11	11	..	..	..	60	200 00	Two weeks,	do.
11860	Do.	11	11	3	..	..	130	400 00	do.	do.
11863	Do.	10 $\frac{1}{2}$	10 $\frac{1}{2}$	2 $\frac{1}{2}$	35	250 00	175	612 00	do.	do.
11865	Do.	11	11	..	1	25 00	105	..	do.	do.
11867	Do.	9	9	1	28	106 00	4	12 50	do.	do.
11870	Heater,	11	10	2	..	38 00	72	300 00	do.	do.
11874	Puddler,	10	10	2	10	51 50	40	146 00	do.	do.
11875	Do.	10	10 $\frac{1}{2}$	2	..	..	78	260 00	do.	do.
11876	Iron-worker,	11	11	2	..	..	18	40 00	do.	do.
11878	Puddler,	10 $\frac{1}{2}$	10 $\frac{1}{2}$	..	..	..	30	100 00	do.	do.
11879	Do.	12	10	2	..	15 00	170	500 00	do.	Cash and trade.
11881	Do.	11	7	2	..	50 00	60	150 00	Weekly,	do.
11881	Rougher,	9	8	2	..	25 00	90	250 00	Two weeks,	do.
11885	Iron-worker,	12	10	2	..	..	..	..	Weekly,	Part trade.
11892	Plasterer,	10	9	1	..	..	30	125 00	Monthly,	Cash.
11898	Iron-worker,	8	8	..	..	..	78	400 00	Two weeks,	Part trade.
11901	Do.	9 $\frac{1}{2}$	8 $\frac{1}{2}$	..	..	100 00	175	400 00	Monthly,	Cash.
11902	Do.	10	10	2	8	..	..	374 32	do.	do.
11912	Steel-worker,	12	7 to 10	4	30	30 00	100	150 00	Monthly,	Part trade.
11917	Saw-filer,	11	10	3	3	..	..	100 00	do.	Cash.
11918	Shoe-cutter,	9	9	1	..	..	103	..	Weekly,	do.

11919	Shoemaker,	9	5	2	140 00	do.	do.
11922	Weaver,	11	5	3	300 00	Monthly,	do.
11924	Shoe-cutter,	10	5	24	120 00	Weekly,	do.
11925	Frame-work knitter,	10	5	2	12 00	Two weeks,	do.
11926	Female-shoe operator,	9 $\frac{1}{2}$	5	1 $\frac{1}{2}$	45 00	Weekly,	do.
11928	Steel-worker,	12	9	4	30	Monthly,	do.
11930	Do.	8	8	2	25 00	do.	do.
11931	Do.	12	12	6	15 00	Two weeks,	do.
11932	Slater,	10	10	2	47	Weekly,	do.
11933	Female shoe operator,	10	9	30	100 00	do.	do.
11936	Conductor,	10 to 14	7 $\frac{1}{2}$	6	225 00	Monthly,	do.
11938	Twister,	10 $\frac{1}{2}$	14	12	85 00	Weekly,	Part trade.
11939	Tailor,	14	10	2	100 00	Monthly,	Cash.
11940	Steel-worker,	12	10	4	58	do.	do.
11942	Upholsterer,	10 $\frac{1}{4}$	8 $\frac{1}{2}$	2	100 00	Monthly,	Part trade.
11947	Weaver,	10	9	60	150 00	do.	do.
11964	Coal miner,	10	11	38	45 00	do.	do.
11965	Foreman,	10	9	8	40 00	do.	do.
11966	Track-layer,	12	12	26	50 00	do.	do.
11972	Coal miner,	12	12	3 or 4	60	do.	do.

HOMES OF WORKINGMEN.

Number.	OCCUPATION.	Location.	Condition of Houses.	Whether in blocks or sepa- rate.	Has each house a yard to itself?	Are the premises arranged to contribute to the com- fort of the tenant?	Average number of rooms.	Average monthly rent.
11573	Blacksmith,	Towanda,	Good,	Blocks,	Not always,	Not always,	4 to 8	\$6 00 to \$16 00,
11574	Do.	Harleigh,	Medium,	do.	No,	They are,	3 to 4	3 50 to 4 50
11576	Roller-maker,	Renovo,	Good,	do.	Yes,	Yes,	6	11 25
11579	Blacksmith,	Banksville,	Very poor,	do.	No,	No,	2	and coal, 5 00
11585	Do.	Clermont,	Not very good,	do.	do.	do.	5	3 50
11587	Carpenter,	Rasselas,	Unplastered frames,	Separate,	Yes,	do.	4	3 00
11589	Blacksmith,	Mt. Carmel,	Not good,	Blocks of two,	do.	Not fully so,	3	4 00
11593	Coal miner,	Monongahela City,	Good, small houses,	Blocks,	do.	No,	4	5 00
11595	Carpenter,	Pittsburgh,	Good,	Both,	do.	Yes,	4	12 00
11605	Car-builder,	Renovo,	Good,	do.	do.	do.	6	11 00
11607	Do.	Renovo,	Very good,	do.	do.	do.	7	10 00
11610	Check-weighman,	Pittsburgh,	Good,	do.	No,	No,	3	8 00
11612	Clgar-maker,	Philadelphia,	Good, brick,	Blocks,	do.	Not always,	3	13 00
11614	Carpenter,	Philadelphia,	Good,	do.	Generally,	Sometimes,	4	13 00
11615	Do.	Troy,	do.	Separate,	do.	Yes,	5	6 00
11618	Do.	Oscola Mills,	do.	do.	do.	do.	5	7 00
11621	Do.	Scranton,	do.	Both,	do.	do.	4	7 00
11623	Cabinet-maker,	Hyde Park,	do.	Both,	About half,	No,	5	8 50
11627	Coal miner,	West Monterey,	Not good,	Both,	do.	do.	4	3 00
11628	Mining boss,	Dudley,	Good,	Separate,	Yes,	Yes,	4	2 00
11629	Coal miner,	Clermont,	Poor,	Blocks,	No,	No,	5	3 50
11630	Cloth sizer,	Glen Riddle,	Pretty fair,	do.	Generally,	Generally,	4	5 00
11641	Engineer,	Worth,	One story and a half,	do.	do.	do.	4	3 00
11644	Do.	Wilkes-Barre,	Good,	Both,	do.	do.	4	8 00
11645	Do.	Mahanoy Plane,	Poor,	Blocks,	No,	No,	3	3 50
11646	Shear boss,	Pittsburgh,	Good and bad,	Both,	Generally,	In some cases,	1 to 4	5 00 to 15 00
11647	Locomotive engineer,	Renovo,	Good,	Blocks,	do.	Yes,	4	12 00
11650	Do.	Scranton,	do.	Both,	Yes,	No,	5 to 6	8 00 to 10 00
11658	Window-glass cutler,	Pittsburgh,	All kinds,	do.	No,	Yes,	3	18 00
11659	Gas and steam-fitter,	do.	Good,	Blocks,	Not all,	Not all,	3	12 00
11671	Heater,	do.	Pretty fair,	do.	Yes,	In some cases,	4	14 00
11672	Glass-blower,	do.	Very good,	do.	do.	Mostly,	4	15 00
11673	Glass-presser,	do.	do.	do.	do.	do.	4	15 00

11674	Glass-blower,	Hulton P. O.,	Good,	Separate,	do.	.....	4 to 6	7 00 to 12 00
11675	Do.	Hawley,	do.	do.	No.	Sometimes,	.....	7 00
11676	Do.	Parker's Landing,	Not very good,	Blocks,	Yes,	Yes,	.....	14 00
11680	Do.	Philadelphia,	Good,	do.	Not all,	Not all,	4 to 6	12 00
11685	Glass-blower,	Pittsburgh,	do.	do.	Yes,	Yes,	5	12 00
11687	Do.	Scranton,	do.	Rows,	No.	No.	4	6 00
11689	Laborer,	Monongahela City,	Not very good,	Both,	Not all,	Not always,	3	12 00
11690	Hammerman,	Pittsburgh,	Fair,	do.	No.	Not in general,	3	10 00
11692	Iron-worker,	do.	Very comfortable,	do.	Yes,	Yes,	4	9 00
11693	Do.	Leechburg,	Very good,	Separate,	Yes,	Not in all cases,	3	12 00 to 18 00
11695	Heater,	Bradbrook,	Fair,	Blocks,	No.	No.	2	11 00
11697	Steel-worker,	New Castle,	Not good,	do.	Generally,	Some of them,	5 to 6	4 50
11698	Heater,	Banksville,	Generally bad,	do.	No.	No.	2	9 00 to 10 00
11700	Laborer,	Thurflow,	do.	do.	do.	do.	4	6 00
11710	Conductor,	Broad Top City,	Plank houses,	do.	do.	do.	2 to 3	5 00 to 8 00
11719	Laborer,	Monongahela City,	Good,	do.	do.	do.	3	5 00
11726	Coal miner,	do.	Not good,	do.	do.	do.	3	6 00
11729	Do.	Coal Bluff,	do.	do.	Yes,	Yes,	2	4 00
11730	Do.	Shire Oaks,	do.	do.	No.	No.	3	3 00
11731	Do.	do.	Good,	do.	do.	do.	3	2 50
11732	Do.	Neshannock,	Frame and plank,	do.	do.	do.	3	3 00
11733	Do.	do.	Not very good,	do.	do.	do.	3	2 00
11734	Do.	Jackson Centre,	Good,	do.	Yes,	Yes,	3 to 5	5 00
11735	Do.	Wheeler,	do.	Blocks,	No.	No.	4	2 00
11736	Do.	do.	do.	do.	do.	do.	3 to 5	5 00
11737	Do.	Barelay,	Inferior,	do.	do.	do.	4	2 00
11738	Do.	do.	do.	do.	Yes,	Yes,	3 to 5	1 50 to 3 00
11742	Do.	Turtle Creek,	Inferior,	Blocks,	No.	No.	4	8 00
11744	Do.	Banksville,	Good,	do.	Yes,	Yes,	2	4 50
11746	Do.	Allenport,	do.	do.	Yes,	Sometimes,	3	5 00
11750	Do.	Duncan,	Very bad,	do.	No.	No.	3	4 00
11751	Do.	Woodville,	do.	do.	do.	do.	3	8 00
11753	Do.	Wilkes-Barre,	Good,	Separate,	Yes,	Yes,	6	10 00
11754	Do.	do.	do.	Blocks,	do.	do.	4	8 50
11755	Do.	Hazleton,	Very poor,	do.	No.	No.	2	9 00
11756	Do.	St. Nicholas,	Not good,	Both,	do.	do.	4	3 50
11759	Do.	Mahanoy City,	Very bad,	Blocks,	do.	do.	4	5 00
11760	Do.	Lost Creek,	Fair,	do.	Yes,	Tolerable,	5	8 00
11761	Do.	St. Nicholas,	Very bad,	do.	No.	No.	3	3 50
11763	Laborer,	Girardville,	Not good,	do.	do.	Not generally so,	3	4 00
11765	Coal miner,	Tremont,	Very bad,	do.	do.	No.	4	4 00
11767	Foreman,	Schuylkill county,	Very good,	Both,	Some cases,	Generally,	4	4 00
11768	Coal miner,	Banksville,	Not good,	Blocks,	No.	No.	2	5 00
11769	Fire-boss,	do.	do.	do.	do.	do.	2	4 00
11771	Coal miner,	Phillipsburg,	Very poor,	Both,	do.	In very few cases,	4	8 00
11772	Do.	Busbin,	Not good,	do.	do.	No.	4	6 00
11775	Do.	Wilkes-Barre,	do.	do.	Yes,	Fair,	4	8 50
11778	Do.	Catfish,	Very poor,	do.	No.	No.	2 & 3	3 50
11780	Do.	West Monterey,	do.	do.	Some cases,	do.	2	3 00
11781	Do.	Hilliard's,	Good,	Blocks,	No.	do.	4	5 00
11789	Do.	Clermont,	do.	do.	Yes,	Yes,	6	3 50
11792	Do.	Du Bois,	Very poor,	Both,	A few,	Very few,	2 to 4	5 00 to 7 00
11793	Do.	do.	Not good,	Separate,	do.	No.	3	5 00

HOMES OF WORKINGMEN—Continued.

Number.	OCCUPATION.	Location.	Condition of Houses.	Whether in blocks or separate.	Has each house a yard to itself?	Are the premises arranged to contribute to the comfort of the tenant?	Average number of rooms.	Average monthly rent.
11794	Coal miner,	Pancoast,	Unplastered boards,	Separate,	No,	No,	4	\$3 00
11795	Laborer,	Elk county,	do.	Both,	do.	do.	4	\$3 00 to 5 00
11797	Coal miner,	Kersey,	Very poor,	Separate,	do.	do.	4	3 50
11803	Do.	Clarion county,	do.	Blocks,	do.	do.	3	4 00
11805	Do.	do.	do.	Blocks,	do.	do.	3	6 00
11806	Do.	East Brady,	Very bad,	Blocks,	do.	do.	2	4 00
11808	Do.	Catfish,	do.	do.	do.	do.	3	3 00
11809	Do.	East Brady,	Bad,	do.	do.	do.	2 &	3 00
11814	Do.	Shamokin,	do.	do.	do.	do.	4	5 00
11817	Do.	Monongahela City,	Not very good,	do.	do.	do.	2	2 00
11824	Stove molder,	Pittsburgh,	Middling,	Separate,	do.	do.	3	3 50
11825	Iron molder,	Allegheny,	Good,	do.	Yes,	Not always,	4	13 00
11827	Stove molder,	do.	do.	Both,	No,	do.	3	12 50
11831	Iron molder,	do.	do.	Blocks,	do.	They are not,	4	15 00
11832	Contractor,	Pittsburgh,	Not good,	Both,	Some have,	They are not,	4	15 00
11833	Machinist,	Renovo,	Good,	do.	Yes,	They are,	4 to 5	10 00 to 15 00
11834	Do.	do.	do.	Courts and alleys,	No,	No,	5 to 8	12 00 to 13 00
11840	Do.	Philadelphia,	Miserable,	do.	No,	No,	4	12 00 to 15 00
11841	Carpenter,	Osceola Mills,	Shells,	Blocks,	Generally,	They are not,	4	5 00
11843	Machinist,	Hyde Park,	Fair,	do.	Yes,	Yes,	4 to 5	8 00 to 15 00
11846	Do.	Glen Riddle,	do.	do.	No,	Not always,	3 to 4	4 00 to 6 00
11848	Nailer,	Pittsburgh,	Good,	Blocks,	do.	do.	4	13 00
11849	Do.	Sharnsburg,	Fair,	do.	Generally,	Not always,	4	13 00
11853	Welder, pipes,	Pittsburgh,	do.	do.	No,	do.	3	12 00
11855	Patternmaker,	do.	Not good,	do.	Rarely,	No,	3 to 6	12 00 to 20 00
11856	Printer,	Towanda,	Good,	Both,	Yes,	Yes,	4 to 12	6 00 to 18 00
11858	Nailer,	do.	do.	do.	do.	do.	3 to 6	7 00
11859	Puddler,	Pittsburgh,	Pretty good,	do.	Some have,	Not always,	4 to 6	10 00 to 16 00
11860	Do.	do.	Poor,	do.	do.	No,	3	10 00
11863	Do.	do.	Not good,	Blocks,	do.	In few instances,	4	10 00
11865	Do.	do.	Very good,	do.	Yes,	Yes,	5	14 00
11867	Do.	do.	Very poor,	do.	do.	do.	3	9 00
11870	Heater,	do.	Pretty fair,	do.	do.	Generally so,	2 to 4	8 00 to 15 00

11874	Puddler,	Pittsburgh,	Good,	do.	No,	No,	2 to 5	9 00 to 18 00
11875	Do.	Allegheny,	Poor,	do.	do.	In some cases,	3	12 00
11876	Iron-worker,	Pittsburgh,	Middling,	do.	do.	Yes,	3	11 00
11877	Puddler,	Sharon,	Comfortable,	Separate,	do.	Some are,	5	6 00 to 10 00
11878	Do.	West Middlesex,	Pretty good,	do.	Yes,	Some are,	5	5 00 to 7 00
11879	Rougher,	Pittsburgh,	Very good,	Blocks,	No,	Yes,	2 & 3	5 00 to 8 00
11880	Iron-worker,	Scranton,	Fair,	do.	do.	Some are,	3 to 4	4 50 to 5 00
11881	Plasterer,	Philadelphia,	Good,	do.	Yes,	Generally,	4	13 00
11882	Iron-worker,	Johnstown,	do.	do.	do.	Yes,		
11883	Do.	Pittsburgh,	Very poor,	do.	No,	No,	2 to 4	14 00 to 25 00
11884	Do.	Canonsburg,	do.	do.	do.	Not always,	4	10 00
11885	Steel-worker,	Scranton,	Very good,	do.	Yes,	Yes,	5 to 6	5 00 to 10 00
11886	Saw-filer,	Osceola Mills,	Good,	Separate,	do.	do.	4	8 00
11887	Stone-cutter,	Philadelphia,	Fair,	Blocks,	do.	Fairly,	4	14 00
11888	Shoemaker,	Do.	Good,	do.	do.	Yes,	4	14 00
11889	Weaver,	Do.	do.	do.	No,	No,	3	11 00 to 15 00
11890	Shoe-cutter,	Do.	do.	do.	Yes,	They are,	4	12 00
11891	Frame-work knitter,	Do.	do.	do.	No,	Scarcely so,	3 & 4	9 00 to 13 00
11892	Steel-worker,	Homestead,	do.	do.	do.	No,	3	12 00
11893	Slatery,	Pittsburgh,	do.	Alleys, &c.,	Sometimes,	do.	3	10 00 to 15 00
11894	Female shoe operative,	Towanda,	Comfortable,	Blocks,	Yes,	No,	5	6 00
11895	Twister,	Glen Riddle,	Moderate,	do.	Some have,	do.	4	4 00
11896	Tailor,	Philadelphia,	Not good,	do.	No,	do.	4	10 00 to 15 00
11897	Steel-worker,	Homestead,	Mere shells,	do.	Not all,	Not all,	3	15 00
11898	Weaver,	Aston Mills,	Good,	do.	No,	No,	5	5 00
11899	Coal miner,	Mt. Pleasant,	Moderate,	do.	do.	Generally,	3	8 00
11900	Foreman,	Westmoreland co.,	do.	do.	do.	No,	4	7 50
11901	Track-layer,	Do.	Good,	do.	do.	No,	4	and coal, 7 75
11902	Coal miner,	Do.	do.	do.	do.	do.	2 to 4	8 00

REMARKS BY EMPLOYEES ON THE HOURS OF LABOR AND THEIR ADVOCACY OF EIGHT HOURS FOR A DAY'S WORK.

11,561. *Beamer, Delaware county.*—It is my impression that, if there was a law limiting a day's work to eight hours, the same to be strictly enforced, it would, in a great measure, do away with the periodical depression in the cotton and woolen trade. The main trouble, it appears to me, is, that as soon as times become a little brisk and orders are plenty, a great many mills commence to work over-time, and, as a result, the orders are filled and the market over-stocked and dull times are thrust upon us again. If the law regulating the day's work was enforced, I believe it would benefit employer and employé.

11,650. *Locomotive engineer, Lackawanna county.*—The majority of engineers work about twenty days a month, and average about thirteen hours each day. They have to double the road each trip, which takes about twenty-six hours, without sleep or rest, which leaves about twenty-two hours at home out of forty-eight. When working full time, three of these trips are made each week. I think nine hours long enough for an engineer to watch ahead and control his engine.

11,754. *Coal miner, Luzerne county.*—On an average we work about three days a week, whereas, if eight hours was adopted as a rule for a day's work and strictly lived up to, steadier work and general satisfaction would be the result. Eight hours is long enough for a man who works in the mines to inhale the dust and foul gases that he is subjected to. A miner, at present, leaves his home at six, A. M., taking his cold lunch along with him, and does not return to his house until after six, and sometimes as late as seven o'clock in the evening.

11,846. *Machinist, Delaware county.*—By reducing the production, I think the operator could get better prices for his goods, and could afford to pay better wages at a very slight advance to the consumer. At present we are not working full time, which is sixty hours a week, but reduced to fifty hours. Unless there is a reduction of production, we will have to submit to a cutting in wages, and I think that the means to prevent this is to reduce the hours of labor.

11,874. *Puddler, Allegheny county.*—A puddler makes five heats for a day's work, converting pig metal into muck iron. He produces on an average about two thousand three hundred and seventy-five pounds, which requires about ten hours' time. During the summer months it requires three men to perform the work, so that the wages made at a puddling furnace have

to be divided among them. During cold and moderate weather he employs but one helper, to whom he pays from \$2 10 to \$2 30 per day, leaving from \$3 50 to \$3 65 per day to the puddler. In the summer months each of the two helpers earns about \$1 60 per day, which will leave about \$2 60 to the puddler. It is my opinion that four heats, or eight hours per day, is as much as a puddler ought to be required to do. An effort was made a couple of years ago to establish such a rule, but it met with such strong opposition that the idea was abandoned, for the reason that many could not support their families by reducing the amount of work, as it would be a reduction of one fifth of their daily earnings. The work is not especially unhealthy, except in the extreme hot weather, when there is a liability to be overcome by the heat, and, unless great care is taken, there is some danger from explosion.

11,878. Puddler, Mercer county.—The hours of our labor can only be reduced by making one heat per day less, five heats being the present custom, or by getting metal requiring less labor.

11,879. Puddler, Mercer county.—Five heats constitute a day's work where a double turn is the rule, and six heats on a single turn. We are now working six heats per turn, hence we work twelve or thirteen hours each day. Our work is very laborious and very exhausting during hot weather, sometimes surrounded by an atmosphere of two hundred degrees Fahrenheit.

11,892. Plasterer, Philadelphia.—Believing in the greatest good to the greatest number, I am of the opinion that more than one half of the misery and discontent, to say nothing of the idleness, crime, and pauperism, (and in many instances pauperism and tramps are unemployed labor driven mad,) might be avoided by reducing the hours of labor, as many who are now idle and willing to work, would find avenues of employment, and the merchants and others would reap the benefit of their earnings; besides, those who are already toiling would have an extra hour or so, which would prove beneficial to their health and the general comfort of their families.

11,942. Upholsterer, Philadelphia.—I have no cause to complain under my present employer, but there are a great number in my line of business who have. One half of the upholsterers are out of employment four months in a year, and during the months of November and December are compelled to work most of the time fourteen hours per day, and also on Sunday. If we worked but eight hours a day, and were not compelled to work over-time, we would have work all the year. Our wages are as good as that of a majority of mechanics, ranging from \$15 to \$18 per week; but when we deduct our lost time, while rent and expense of living still go on, we fall short of most trades.

11,710. Coal miner, Allegheny county.—In my opinion the hours of labor ought to be reduced to eight for a day's work, so that a workingman could have sufficient time for rest, and allow him time for moral and mental improvement and cultivate social qualities that would revert to the mutual

benefit of himself and co-laborers and society in general. Not having time to improve the mind, and the system exhausted from over-work, there can be nothing done to raise him out of the slough of ignorance so long as the eight-hour law is a dead letter. I do not desire a penalty attached to the law as some propose, but let every man do his part towards bringing about that end. I believe God intended that the day should be divided so as to allow eight hours for work, eight hours for sleep, and eight hours for recreation and cultivation of the mind.

11,755. Coal miner, Luzerne county.—If the hours of labor were reduced from ten to eight per day, it would tend towards dispensing with those temporary suspensions of three days per week for seven or eight months each year in the anthracite coal region. The anthracite coal operators periodically close their works three days a week for the purpose of curtailing the supply and keeping up prices, and it is the firm belief of the majority of miners that if two hours were taken from each day's labor, it would result very much to their benefit by furnishing them work throughout the year and keep the production within the bounds of demand.

11,614. Carpenter, Philadelphia.—In my opinion the hours of labor should be reduced to eight for a day's work. But perhaps if we look a little deeper into existing conditions of society in general, a lesser number of hours might be sufficient to produce all and even more than what is now produced. I lost during last year thirteen weeks which, if distributed throughout the year, would give me steady employment at an average of seven and a half hours per day, which argues strongly in favor of a reduction of the hours of labor, and I know I worked as steadily as most mechanics who work for wages; and in addition to the fact that producers who are compelled to work an excessive number of hours each day, and thereby create an over-production that deprives them of steady employment throughout the year to the extent of a loss from sixty to one hundred days per annum, while consumption, wear and tear, rent and fuel still go on, although his earnings are stopped, there are besides an army of non-producers standing in front of tailor shops peddling trifles, distributing hand-bills, and such like, who could be induced to take to some more useful avocation of producing, if the hours of labor were so regulated by law that all men could find a fair share of employment, precluding the necessity of their being hired to such miserable pursuits. All men must live and be supported by those that toil, and all prisoners, burglars, pick-pockets, gamblers, paupers, tramps, and worthless characters of all descriptions are a tax upon the honest wage worker. Should it not be the duty of the Government to watch the health and condition of its people, or is it the duty of Government to tax labor and give nothing in return in the way of protection? I deem that the time has come demanding the hours of labor be limited by law, as the strain upon the vital force is too great, having the effect to weaken mind and body, ruining health, and shortening life.

Payment of Wages.

11,627. Coal miner, Clarion county.—We had a company store here until September 1, when it was sold. It was as good, I may say the best, company store I ever saw; but if I was paid weekly, and permitted to deal where I could do the best, it would be much better. We are now given orders upon the man who bought the store from the company. In about ten months we are promised orders where we choose to have them. This compels him to sell goods equal to any merchant in the place and for the same prices.

11,737. Coal miner, Bradford county.—The employés in and about the mines where I work are compelled to deal in the company store, and have to pay a very high price for their goods. They are as good in quality as can be purchased elsewhere, but higher in price, and we are not treated with the same courtesy and accommodation as we would be in purchasing for cash.

11,768. Coal miner, Allegheny county.—If we do not deal in the company store we are not wanted at the mine, and are given a poor place to work. The company-store system is a blot on the liberties of this country, and should be the concern of all whether in or out of the mine.

11,772. Coal miner, Clearfield county.—We are compelled to take a part of our wages in store goods. I have been dealing at the store connected with the mines, at which I am employed, only to a small amount for some time, and have been given to understand that my services are no longer required. My son was treated in the same manner last summer. The stores are not in all cases owned directly by the coal companies, but by a combination of Jews, which are worse than if owned by the companies. The company stores, or the stores appointed to serve the same purpose, send a list of those not dealing with them to the operator, which is sent to the superintendent in charge, directing them to notify the delinquents, and in some cases they are told plainly that they must deal in that store or no work. We are not treated with the same courtesy and accommodation as we would be were we to purchase with cash where we pleased. They are assured of our custom and treat us accordingly.

11,746. Coal miner, Washington county.—If we do not deal in the company store we are reminded of the fact, and are expected to do so or go elsewhere. The quality of the goods is equal to those that can be purchased at other stores, but about ten per cent. higher in price. The miner is treated with as much courtesy and receives as much accommodation as any one else while he has anything coming to him.

On the Danger or Unhealthiness of Occupations.

11,621. Carpenter, Lackawanna county.—Our business is not unhealthy only from want of proper drainage of the shop where we work. The water laying under the floor of the same until it becomes stagnant, producing malaria, and there is a general complaint among the workmen concerning

it, but the company appear to be indifferent; besides we have not sufficient shop room, and oftentimes are exposed to the weather in consequence.

11,685. *Glass-packer, Allegheny county.*—In our business we use baled prairie hay, and in some cases it is put up damp, and spontaneous combustion is the result, and when opened up and shook out, the fumes of the dust subjects us to all diseases caused by obstruction and aggravation of the air passages by the inhalation.

11,742. *Coal miner, Allegheny county.*—We are exposed to considerable danger from the falling of roof and slate and sometimes the coal, but with the exception of coal digger's backache we are, as a rule, healthy. The air in a coal mine, however, is not as pure as it ought to be; great improvement in this respect could be made with very little cost if those who have charge of mines understood their business, which they do not in all cases, and could be remedied by legislation in requiring competent men to hold these positions. Imperfect drainage and a lack of knowledge as to where and how to hang doors in the mine are two sources productive of much impure air and stench. The new law directing that break-throughs across the pillar between rooms shall be made every thirty yards has imposed a fresh burden upon the miner in his being compelled to do the work without compensation.

11,870. *Heater, Allegheny county.*—Those employed in mills and factories are exposed to great danger in consequence of unsound boilers, and in many instances boilers that ought to be condemned are constantly used without regard to the danger to human life, and oftentimes incompetent men are in charge of the same.

On a more Equitable Mode of Compensating Labor.

In reply to the following questions the subjoined answers were given, and are numbered by letters a, b, and c, corresponding with the questions:

a. *What way, if any, have you thought of by which you could be paid more fairly and equitably for your labor?*

b. *In what way, if any, do you consider your employer unfairly profits by your labor?*

c. *How much yearly do you consider yourself unpaid?*

11,573. *Blacksmith, Bradford county.*—"a." By cash payments as soon as work is done. "c." Three hundred dollars. I think there is too much odds in favor of capital for a man in my occupation. Twenty-five years is as long as a man should be obliged to follow it.

11,710. *Coal miner, Allegheny county.*—"a." By being paid in cash in full every two weeks, and spend the same to the best advantage. "b." By the exaction of two hours' labor each day more than ought to be required. "c." The market value of two hours' labor each day.

11,726. *Coal miner, Washington county.*—"a." By being paid by pit measure, the coal measured in the solid before mining, by the yard or foot. "b." By the extortion or high prices on their goods of twenty-five per cent.

"c." About one hundred dollars in labor, and from seventy-five to eighty dollars on goods purchased at their store. About one third of our labor goes into nut coal and slack, for which we get no pay. The coal we produce is run over a one-and-a-half-inch screen before it is credited to us, and although we are only paid for lump coal which passes over the screen, the nut coal and slack enters into competition in the market. If we were paid by bank or pit measure, it would require good, practical miners to do the work, so as to bring out good coal, and protect the honest miner against wood-choppers and tramps, who come from all parts of the country, and, being single men, make the money and leave for other parts; they are a drunken set of men and bad citizens generally, and belong to those secret unions that exist in the eastern part of the State, called the "Knights of Labor." I never belonged to these societies and never will.

11,730. *Coal miner, Washington county.*—"a." By being paid in cash in full every two weeks. "b." By the use of the company store. By not paying for the nut coal, and the taking of overweight of lump coal from the miner's wagon. A certain maximum weight is set for each wagon, and what goes beyond that is not paid for, but is sold by the operator all the same. A great deal is made evidently by the bosses in this unjust way. It is impossible for the miner to tell when he has the limited number of bushels on his wagon.

11,732. *Coal miner, Mercer county.*—"a." By having the coal we use at our homes free of charge. By paying our wages every week or two weeks, and reducing the hours of labor to eight, and by giving us pay for two thousand pounds to the ton instead of two thousand one hundred and fifty pounds.

11,733. *Coal miner, Mercer county.*—"a." If we were paid weekly it would enable our people to purchase their goods to a better advantage. They could purchase their goods from five to ten per cent. cheaper if they bought for cash instead of by the present method of credit from pay to pay. "c." If everything is taken into consideration, fully one third.

11,736. *Coal miner, Mercer county.*—"a." By getting paid for all the coal I dig. "b." By taking two thousand one hundred and fifty pounds screened coal for a ton, and only giving us two thousand pounds to a ton when we buy it; also, by taking all the slack and nut coal and paying nothing for it. "c." To the extent of overweight, and what is due to labor for the amount of nut coal and slack produced for the market.

11,742. *Coal miner, Allegheny county.*—"a." By weighing the coal at mouth of the mine. "b." We have to stand all loss of break-downs on the incline plane, latches opening, and coal rolling off cars when being loaded; keep all fires up at check-house and blacksmith-shop. "c." Two hundred dollars. I think there is no man in the mine but what could make use of that amount, and not be charged with being wasteful or putting on airs.

11,744. *Coal miner, Allegheny county.*—"a." By enforcing the checkweighman act so that honest operators could compete with dishonest ras-

cals. "b." By not justly paying an equivalent amount for dead work; also, neglecting to keep the water out of our working places, and in not keeping a sufficient quantity of air in the rooms.

11,746. *Coal miner, Washington county.*—"a." By getting our wages paid in cash every two weeks, and going where we please to purchase our goods. "b." Thirty-five per cent. of our labor goes through the screen in the shape of nut coal and slack, for which we receive no recompense, and the operator sells the same for one cent per bushel under the tippie.

11,755. *Coal miner, Luzerne county.*—"a." By paying cash every two weeks and shortening the hours of labor. "b." By monthly pays and company stores. "c." Two hundred dollars.

11,758. *Coal miner, Schuylkill county.*—"a." By the workingmen uniting and ask our legislators to make laws for labor as well as capital. "b." By restricting the markets and causing a suspension of labor to half time, and when prices advance in the market keeping to themselves all the increase.

11,759. *Coal miner, Schuylkill county.*—"a." By receiving my pay every fortnight. "b." By causing a suspension of work, for the purpose of restricting the market and keep up the price of coal, without consulting the condition of his employés.

11,771. *Coal miner, Centre county.*—"a." By receiving my wages in cash every week, and being paid for every pound of coal I dig as the law requires, and not being robbed out of from three to five hundred pounds, as we are now. "b." By charging too high prices for the goods we are compelled to buy at their "pluck-me" stores. "c." From seven to ten per cent. of my earnings.

11,772. *Coal miner, Clearfield county.*—"a." By being paid in cash every two weeks, with choice to deal where we can purchase the cheapest. "b." By unfair scales in the weighing of the product of our labor, and by lifting bottom, so that it make the road-way high enough for the mules to haul away the coal, and doing other work for which we get no pay. "c." One hundred and fifty dollars.

11,773. *Coal miner, Clearfield county.*—"a." After some years of attention to this question, I have concluded that we cannot get our rights only by thorough organization, and then exact our fair share, in the manner one dog reasons a bone from the other. "b." On the same principle that the highwayman profits from his victim. They make no secret of taking from three to five hundred weight of coal on each ton. This we know definitely by comparing the weight of coal with and without check-weighman. "c." The average wages here for those who work every day there is work do not exceed \$30 per month; therefore I consider we are underpaid yearly \$240, as I believe no workingman should receive less than \$600 per annum.

11,796. *Coal miner, Elk county.*—"a." By being paid strictly in cash every two weeks, thus giving every man a chance to deal where he chooses. "b." By having weigh-scales too far from the mines, in some cases one and a half miles distant, thus giving the company all the coal that is

knocked off and falls from the cars. "c." About from fifty to seventy-five cents per day.

11,794. *Coal miner, Jefferson county.*—"a." Shorter hours for work, and receiving pay for all my labor every two weeks in cash. "b." By the sereen system, which robs me of nearly half of the fruits of my labor. "c." About \$250.

11,808. *Coal miner, Clarion county.*—"a." By two weeks' pay. "b." By holding their employes' wages for thirty to forty-five days, so that necessity compels them to take part of their earnings out of the "pluck-me" stores.

11,841. *Carpenter, Clearfield county.*—"a." By receiving our wages at the end of each week. "c." Twenty-five cents a day, or making eight hours a lawful day's work, and receive the same wages as at present.

11,856. *Printer, Bradford county.*—"a." By receiving more per thousand for setting type. Printers, as a rule, are not as well paid in this place as they ought to be. Their wages range from \$6 to \$10 a week for ten hours' hard work each day. For piece-work they receive twenty-two cents per thousand ems, where they used to receive from twenty-five to thirty cents for the same work, and the week-hands got from \$6 to \$15. It is hard for men with families to make ends meet on even \$10 per week.

11,683. *Puddler, Pittsburgh.*—"a." By enacting such laws as will make it a criminal offense for any monopoly or their agents to import into the United States bodies of men whose freedom has been purchased. It is very easy for agents to engage a sufficient number of these people, who are crowded, ill-fed, and ill-paid in their native land, to go anywhere, at any time, and at almost any price; and as citizens and workingmen, we sternly protest against the importation of foreign laborers, upon whose bodies blood-money to the extent of thirty dollars per head has been paid, and whose liberty has been forsworn before leaving their native land, while at the same time we welcome all such as come here of their own free-will and accord; and I believe that a high tariff should be fostered on all articles of iron manufacture in the United States, and not till then can we be fairly and equitably paid for our labor.

11,865. *Puddler, Pittsburgh.*—"a." I cannot speak too highly of the method of paying at the mill where I am employed. "b." None, thanks to the Amalgamated Association; but iron-workers in other sections of the country cannot say the same. "c." I receive fair wages for all labor performed.

11,912. *Steel-worker, Lackawanna county.*—"a." I should think eight hours for a day's work at the present rate of wages.

11,919. *Shoemaker, Philadelphia.*—"a." By coöperation with my fellow-workmen. "b." By periodical reduction of wages, without any justifiable excuse for so doing.

11,947. *Weaver, Delaware county.*—"a." By being paid weekly, or at least every two weeks, instead of monthly, as at present, which would revert greatly to the benefit of the laboring classes.

On Homes of Workingmen.

11,623. *Cabinet-maker, Lackawanna county.*—The rents are very high considering the wages paid, and the property-holders, as a rule, do not take much interest in the comfort and convenience of their tenants.

11,759. *Coal miner, Schuylkill county.*—I think the law should give every man the privilege to build his house on unoccupied land. Those large companies have thousands of miles of land running wild in the coal region, and will not give workingmen the privilege of building thereon, thereby compelling him to go into towns where he has to pay as much for his lot as would build his house on the waste lands. If we had the privilege of doing so, we could occupy our time when unemployed in improvements at home.

11,825. *Iron moulder, Allegheny county.*—Rents are very high in Allegheny City. Workingmen are not able to get a comfortable house to live in for less than \$20 a month. After paying rent, coal, and provisions, a man has nothing left of his wages, and there is not one in a hundred who is able to procure a home of his own. I think workingmen would be benefited by having houses built with about four rooms for their use.

11,849. *Nailer, Allegheny county.*—I consider that the tenement houses in this vicinity are not so convenient nor as comfortably arranged as they should be for the enormous rents that are charged, and I believe it is high time that legislation should be made to compel these cormorants to so arrange their houses that the tenants could receive some equivalent for their money.

11,878. *Puddler, Mercer county.*—A large number of the workingmen at this place own their homes.

11,612. *Cigar-maker, Philadelphia.*—In reference to the kind of houses occupied by workingmen, I will state that they are generally in blocks, in side streets and alleys, with but little or no yards.

Strikes, Lockouts, and Arbitration.

11,593. *Coal miner, Washington county.*—We have had two strikes at this place during the year. One for permission to employ a checkweighman and the other to resist a reduction from \$3 50 to \$3 per hundred bushels, which resulted in defeat to the miner in both instances. Arbitration has been tried, but has proven a failure, for neither the operators nor the men will stick to a fixed price. Arbitration cannot set the price for any length of time, as supply and demand regulate prices in the end. When trade is good and prices advance, the operator will not raise the wages until forced by a strike, and never fails to reduce promptly when dull times approach, and always gains his point should a strike occur. The main trouble here in this valley is that there are too many miners, and, as a consequence, we are only employed from six to seven months each year, as the coal is shipped entirely by river in barges, and we are only employed in mining sufficient to load them.

11,612. *Cigarmaker, Philadelphia.*—There have been several strikes and lockouts in our trade during 1883, for an advance in wages. On the first of May, 1883, the revenue on cigars was reduced from \$6 to \$3 per thousand. The cigarmakers, deeming it no more than fair, asked the manufacturers for an advance of \$1 per thousand, being satisfied to have the \$3 divided so as to give \$1 to the employé, \$1 to the manufacturer, and \$1 to the consumer. The manufacturers refused to listen to the proposition. Committees of the workmen waited on the bosses, which had the effect of getting an advance of one dollar on hand-work and fifty cents on mold-work. At first the men would not agree upon these terms, persisting in their demand in full. The strike lasted from three to six days, when the men were forced to submit, not having any support. In some factories the operators, anticipating a strike, locked their men out, but finally gave the advance of fifty cents and one dollar. There were about seven hundred men engaged in the strike and about one hundred locked out. There were about one hundred persons thrown out of work who were not engaged in the difficulty, such as packers, strippers, and laborers.

11,697. *Steel-worker, Allegheny county.*—The workmen at our mill are members of the Amalgamated Association of Iron and Steel-workers, and a committee of the workmen and the managers consult and arrange the wages on the first of each year. The scale or schedule of wages as agreed upon is signed by both parties, and as a result we have no trouble. We have just accepted a reduction of thirteen per cent. all around, and last year we accepted a reduction of fifteen per cent.

11,726. *Coal miner, Washington county.*—A strike took place among the miners of this district against a reduction in the price of mining, commencing December, 1882, and lasting sixty days, when the men went to work, accepting the operators' terms. There were from five thousand to six thousand engaged in the strike, and about six hundred persons not engaged in the difficulty were thrown out of employment in consequence. There was no disturbance, but threatening letters and cards were issued, however.

11,730. *Coal miner, Washington county.*—We have had several strikes during the year. In one case because the operator put off the pay, and another not allowing the men a fair and free choice in appointing a checkweighman. In each case the strike lasted only about two weeks, resulting in no benefit to the men. There were about two hundred men engaged in the strike, who were thrown out of employment. Arbitration, which is now being introduced, I think will prove beneficial to all concerned.

11,734. *Coal miner, Centre county.*—A strike occurred here in which about five hundred persons were engaged, demanding that the provisions of the screen bill should go into effect, which lasted from August 1 until October 1, which proved a loss to all concerned. There were about one hundred and fifty persons thrown out of employment who were not engaged in the difficulty. The miners thought that in the law they had some-

thing by which they could demand pay for all the coal they mined; but, like all other laws passed in the interest of labor, a loop-hole big enough for a cow to pass through was provided, and the operators could stand and laugh at us, and if we did not work away and stop asking pay for nut coal and slack, that they would require us to sign a contract agreeing to their terms.

11,743. Coal miner, Allegheny county.—Arbitration has been tried here in mining coal, and has proven successful in settling wages.

11,774. Coal miner, Allegheny county.—We have had two strikes during 1883 in this (the Pittsburgh Railroad) district in resistance to a reduction of wages. There were about five thousand persons engaged. The first commenced April 1 and terminated April 20, when the men generally went to work at the reduction. Those mines that were not offered a reduction succeeded in causing a general suspension on the first of May of forty-four out of fifty-four mines. About one thousand men continued to work at those mines not engaged in the strike, and in the course of two weeks others began to break, and doubtless the result would have been defeat; but, fortunately for the miners, the "Wallace Voluntary Trade Tribunal act" became a law, and the miners, through the press, manifested a willingness to submit the matter to arbitration under the provisions of the act, which was accepted by the operators, and, after a hearing on both sides, the umpire awarded twenty-five cents per hundred bushels in the miners' favor. This is the first proof under the act that matters in dispute between employer and employé can be settled by arbitration.

11,746. Coal miner, Washington county.—There has been no strike at the mines at the fourth pool, Monongahela river, but on the 1st of November, 1883, the operators reduced the price for mining coal twenty-five cents per one hundred bushels, making the price paid for mining \$2 75 per hundred bushels as against \$3 50 paid at pool No. 2. In the early part of November a mass meeting of this pool was held at California, in this county, and a strike was ordered to take place on the 15th of November to get the twenty-five cents restored to us. In the meantime the operators consulted with the officers of the Miners' Association, and promised them, that if they would keep the mines at work and not come out on a strike as ordered, that they would submit the case to arbitration, and pledged themselves to abide by the decision of the umpire, and would pay \$3 per hundred from the time that the umpire was selected. The miners did not go out on strike on the 15th of November as contemplated, but agreed to abide by the decision. On the 23d of November the board constructed and known as the "Coal Trade Tribunal of the Monongahela River," convened at No. 145 Water street, Pittsburgh, and was represented by four persons from each side, and selected Joseph D. Weeks, of the Western Iron Association, of Pittsburgh, as umpire. They then adjourned until the 4th of December, when they met in the rooms of the Iron Association, Pittsburgh, and began to take testimony. The board closed its labors on the 13th of December, having failed to agree, when the case was submitted to the umpire, and who states

in the decision that in accordance with the testimony he was "compelled to award *that the price of mining coal in the Fourth Pool of the Monongahela river shall remain one half a cent per bushel less than the price paid in the Second Pool.*" The operators refused to accept the award of the umpire. A delegate meeting was held at Wood's Run, Washington county, on January 1, 1884, which "*Resolved*, That we, the representatives of the miners of the Fourth Pool assembled, demand that the operators live up to their agreement, and that if they do not, that a mass meeting of the pool be held at Brownsville, for the purpose of inaugurating a general strike for the enforcement of the umpire's award."

11,751. *Coal miner, Allegheny county.*—We were locked out in May, 1883, because we refused to submit to a reduction of twenty-five cents per one hundred bushels, which was finally withdrawn, and the miners went to work on the 21st of May. Arbitration was tried, but the operators do not appear to approve of any method that does not give them all the advantage.

11,763. *Coal miner, Schuylkill county.*—In reference to strikes, etc., I would state that workingmen here realized the fact, from past experience, that it is a dangerous thing to strike unless they make up their minds to become tramps and seek work elsewhere, as employers follow a striker with much vindictiveness, and endeavor to prevent his obtaining employment at any wages. Employers of labor do not in practice recognize the right of labor to regulate its supply or its price, while they seek to regulate the supply of coal in the markets of the country. It is this assumption of rights and privileges by capital in behalf of itself and the denial of the same to labor that makes the chief conflict between them.

11,782. *Coal miner, Huntingdon county.*—A strike took place against a reduction of ten cents per ton, commencing in July and ending in August by the men going to work at the reduction. There were about sixty miners engaged in the strike.

11,773. *Coal miner, Clearfield county.*—There was no strike inaugurated here last year, but we had some trouble about the first of September, when the "check-weighman act" came in force. The operators did not refuse permission to put on a check-weighman, but refused to pay him through the office, by which method each man could easily be made to pay his *pro rata* share. This refusal had the effect of dispensing with the check-weighman, as most of the men overdrew their earnings in the company store, and consequently would have had nothing left towards paying an officer that would benefit them from three to five hundred weight on each ton of coal they had run over the scales. Thus a man who has sixty tons per month in an ordinary mine would be benefited at the rate of four hundred to the ton—five dollars and fifty cents, fifty cents of which would pay the check-weighman. The operators, with a few exceptions, positively refuse to weigh the coal according to the new "act of Assembly," but persist in weighing by gross weight.

11,792. *Coal miner, Clearfield county.*—We had a strike of eleven weeks'

duration, in which the men demanded pay for the run of mine coal, instead of screened coal, which resulted in defeat to the men. We offered to submit the case to arbitration, which the operators refused. I believe many troubles and disputes arising between employer and employé could be amicably adjusted by arbitration if the system had a fair trial, but there ought to be a heavy penalty attached to the law, so that capital as well as labor would be compelled to abide by the decision. I feel convinced that every difficulty that we have had in this district could easily be settled without the loss of a day by arbitration.

11,794. *Coal miner, Jefferson county.*—A strike of about twelve weeks' duration took place, in an effort of the miners to abolish the screen system, in which about four thousand were engaged, which resulted in the defeat of the men, who went to work November 27 on the old method. Arbitration was offered by the men, but was rejected by the operators.

11,803. *Coal miner, Clarion county.*—The miners engaged in a strike lasted ten weeks, in which they demanded that the coal be weighed to their credit before passing over the screen. They finally went to work on the old system at reduced wages. There were about twenty-five hundred engaged in the strike.

11,875. *Puddler, Allegheny county.*—I have no faith in arbitration in its present shape, because the employers will not adhere to the decision of the umpire unless the award is in their favor, which has been proven in the efforts to settle the difficulties between the miners and operators in Allegheny county. Arbitration is of no avail, unless the umpire's award is made binding on both sides.

11,919. *Shoemaker, Philadelphia.*—A number of strikes have taken place during the year in our trade, chiefly for wages, in which the wage-worker was successful. I lost about forty-two days altogether. The loss in wages I estimated at about \$140.

11,924. *Shoe-cutter, Philadelphia.*—A strike of about three weeks' duration took place in resistance to a proposed reduction in wages, which terminated in our favor. We have a board of arbitration, the members of which are elected for one year. Since October 1, 1883, nine cases have been acted upon by the board, and although in a majority of them, when the board was called together, a strike or a lock-out was imminent, the difficulties were settled to the satisfaction of all concerned, and without loss to either party.

Arbitration may not be altogether perfect in its present shape, but I think it is the best possible plan in settling disputes between employer and employé.

Next to arbitration comes prohibition. In our city we have a police force which costs the people a million and a half of dollars annually. Statistics show that four fifths of their work consists of arrests of drunken and disorderly people. We have a house of correction which costs a quarter of a million annually, used solely as a refuge for those who have graduated from our five thousand rum-shops. We have, also, an alms-

house, which is equally expensive, four fifths of its inmates having been brought there through an over-indulgence in liquor; a county prison, and so on down the list, a dozen or more different institutions might be named that are maintained by the people's money, the majority of whose inmates are driven there by the demon drink, while the rumseller grows fat and prosperous, and requires no committee to look after his interests; all he wants is to be let alone. Give us arbitration and prohibition, and I believe we have all we desire this side of heaven.

11,930. Steel-worker, Allegheny county.—We have never had a strike at the works where I am employed, although we have had several reductions. We have always settled everything through our committee, and I think that until the laboring classes are all organized, and their business properly conducted, strikes will never cease.

Window-glass-blower, Fayette county.—A strike took place in our trade against a reduction of wages, commencing July 1, 1883, and terminating February 1, 1884, in the men's favor. There were about fifteen hundred engaged in the strike, and about twelve or fifteen hundred not engaged in the difficulty, thrown out of employment. The men offered to submit their case to arbitration, but the manufacturers refused.

Window-glass-blower, Allegheny county.—Were locked out September 1, 1883, for the purpose of reducing our wages. There was twenty-two hundred thrown out of work that were directly interested, and about twenty-five hundred who were necessarily thrown out of employment by the stoppage of the works. Arbitration was offered, but refused by the employers.

General Remarks.

11,579. Blacksmith, Allegheny county.—The principal business in this part of the county is coal-mining. The works about here only run about two days a week at present, although they formerly worked very steady during the winter season; but the mines have been so overcrowded by foreign emigrants, encouraged by the operators, that the citizens who have been long residents of the place have been compelled to leave for other parts. The feeling against foreign contract-labor is very strong, and at some not distant day will result in trouble if Congress does not do something to restrict it.

11,610. Check-weighman, Allegheny county.—In examining the pay-rolls of the mine at which I am employed, I find that the earnings of the highest paid miner on the roll is \$502 07, and the general average is \$375. The employes are required to patronize the company store to a certain extent, and although you are not told to do so, by not doing so an excuse for discharge will soon be found. This, however, is one of the best pits in this section, as some pits have not worked one half the year.

11,673. Glass-presser, Allegheny county.—Manufacturers, prompted by temporary prosperity, increase their capacity to such an extent as to create over-production, thus enforcing periods of idleness upon their employes,

who alone suffer, as the manufacturers have made enough during the prosperous time to compensate them for improvements. Employés would have continual employment if this spirit of speculation was abandoned.

11,690. *Hammerman, Allegheny county.*—There are many persons employed in the same works as myself who do not manifest any disposition toward mental improvement. Work, eat, and sleep seem to be the sole object in life with the majority of them. A great percentage of them do a great deal of their work for the rum-seller. This feature of the average workingman's life is the greatest task-master he has to contend with. Body and soul are made to suffer by the shackles thrown around him by this giant evil. It also militates against the cause of labor more than all the competition brought against us.

11,733. *Coal miner, Mercer county.*—If there are any class of laboring men who are underpaid they certainly are the coal-miners, and especially those of the block-coal region of Pennsylvania. In former years, when coke had not entered so largely into use, these mines were operated very steadily throughout the year, but at present during the winter season we work less than half the time. Those who depend on their vocation alone for a livelihood for themselves and family have frequently to deny themselves the bare necessities of life, and sometimes have not sufficient bread to feed their families. I have seen women refused provisions at the store, because the store-keeper knew that their husbands were not earning sufficient to pay for what they consumed. It is lamentable that men willing and able to work fail to earn sufficient to furnish their families with dry bread, while there are companies soulless enough to encourage cheap foreign labor to overcrowd us and take our places.

11,746. *Coal miner, Washington county.*—The following statements are from three miners who work in the same mine, and have worked every day that the bank has been in operation from December 31, 1882, to November 30, 1883, or eleven months:

MONTHS.	No. of days worked.	No. of bushels of coal mined by first person.	No. of bushels of coal mined by second person.	No. of bushels of coal mined by third person, with boy.
February,	15	1,407	1,353	1,492
March,	13	1,057	874	960
April,	17 $\frac{1}{2}$	1,645	2,109	1,758
May,	4	268	411	368
June,	22	2,208	2,711	2,942
July,	7 $\frac{1}{2}$	692	641	917
August,	1	89	108	254
September,	12	1,139	1,191	1,041
October,	24	2,600	2,780	3,648
November,				
	117	11,105	12,178	13,380

The mine was not in operation during the month of January. The above table represents eleven months, or two hundred and eighty-seven working days, while the actual working time is but one hundred and seventeen days, showing a loss of one hundred and seventy days. The price for mining up to October was \$3 per one hundred bushels, and for October and November \$2 75 per one hundred bushels, which makes the earnings of the first person \$323 80, the second person \$355 41, and the third person, with boy, \$389 68, making a general average daily wage for two hundred and eighty-seven working days of \$1 24. The following is a statement of a miner employed at another mine for a period of eleven months, who lost but one day during that period while the mine was in operation. He is a steady, sober man and has six of a family:

MONTHS.	Earnings.	Store.	Rent.
First,	\$26 91	\$25 88	\$3 50
Second,	21 69	31 38	3 50
Third,	18 90	24 78	3 00
Fourth,	17 49	29 38	3 00
Fifth,	46 71	14 61	3 50
Sixth,	6 18	} 24 35	3 50
Seventh,	43 17		
Eighth,	10 83	7 75	3 50
Ninth,	32 37	28 13	3 00
Tenth,	35 04	31 90	
Eleventh,	22 78	11 10	3 50
Total,	44 73	38 87	3 00
	\$326 80	\$268 13	\$33 00

making a total for store and rent of \$301 13, leaving a balance of \$25 67.

11,753. *Coal miner, Luzerne county.*—The system of paying the miner by the car, which is the general custom throughout the anthracite region, I think a very unfair one. The companies sell their coal by weight, and it is nothing but just that they should pay for the same by weight. If there is any bone, dirt, or slate found in a car, the miner loses the whole car. It would be simply justice to deduct no more than the weight of the aforesaid worthless material and allow the miner pay for the actual amount of coal produced. The cars were formerly square in shape, which contained a surface on top of thirty square feet, but the shape of the cars have been changed to a taper from the bottom upwards, with a surface on top of forty square feet. The miner is compelled to top his car, and by this change of shape the companies have a decided advantage by taking about one seventh of the coal mined without paying for it. The use of locomotives in mines is very injurious to the health of miners, inasmuch that every ton of coal they burn creates three and three quarter tons of carbonic acid gas, and that only about one and one half times as heavy as the atmosphere; the quantity is so great that it impregnates the whole of the air in the mine, and is detrimental to the health of all those employed under ground.

11,765. *Coal miner, Schuylkill county.*—I have been exceedingly fortu-

nate, having worked in the mines for forty-six years and have never been compelled to stay at home one week from sickness or injury received in the mine. Perhaps there is not a parallel case in the county. I attribute my good health to the fact that I have always lived a temperate life, and have abstained from the use of tobacco and intoxicants of all kinds all my life, and have always been careful in my general work in the mine; but I believe that the hours of labor should be reduced to eight, which would still keep us ten hours from our homes.

11,778. *Coal miner, Clarion county.*—The condition of the miner is a deplorable one in this locality. Their living generally consists of bread, coffee, and side-meat. There are miners' children here who never had any shoes, except old ones they find on the street, and are not able to attend school during the winter for want of sufficient clothing to keep them warm, and there are no free schools in summer time. We do not get more than half enough work, and for that about half pay. There are miners living here with six or seven in family who did not average over fifteen dollars per month during the year 1883.

11,827. *Stove-molder, Allegheny county.*—Stove-molders are paid by the piece, and the highest wages are made by the strongest and most skilled workmen, consequently the wages vary very much. Some men by close application can earn as much as five dollars a day, while there are others who cannot make more than one third that amount. We belong to a union, which I believe has been a great benefit to our trade. At one time, molders commenced to work at from three to four o'clock in the morning, but a few years ago the union passed a resolution that work should not begin before seven o'clock in the morning throughout the United States, which was successfully carried out, and I have not heard of its violation in a single instance.

11,833. *Machinist, Clinton county.*—The mechanic here has not much room to complain so far as earnings are concerned, as they generally are paid by the piece, and make good wages; but common laborers are poorly paid, and I cannot conceive how they live considering the exorbitant prices that are charged for everything, and of inferior quality at that. Considering the manner in which we are gouged by storekeepers and landlords, the pay of all should be increased.

11,923. *Frame-work knitter, Philadelphia.*—There are many women and children who are employed in the mills and factories, who work very long hours, beyond all bounds of propriety, and it should be the duty of the Commonwealth to see that they are protected. I think an inspector ought to be appointed in every manufacturing city, who should be empowered by law to enter any mill or factory during any working day, to see that all machinery was properly fenced off; that sanitary regulations were properly attended to, and that no children of tender years, who might be physically incapacitated, should be permitted to remain at work.

11,939. *Tailor, Philadelphia.*—There are about three thousand tailors in

this city who work for wholesale houses, and they employ from ten to twelve thousand hands, whose whole life is a shame to civilization. Coats are made at from thirty-five cents to one dollar and twenty-five cents each, and for pants and vests from twenty to thirty-five cents. By working from fourteen to sixteen hours a day they can make two vests or pairs of pants. This work is done chiefly by women and girls, of whom there are thousands engaged who have to furnish their own machine, cotton, light, and oil. They have to go to the stores for their work, and deliver the same when finished. Ten or fifteen pale and half-starved women and young girls may frequently be found working at their heavy machines in one room, or factory as it is termed, in some narrow street, from ten to twelve hours a day, and oftentimes are required to work a half a day on Sunday to finish their work, for a mere pittance of four or five dollars a week. There are cases, however, where they earn as high as from eight to eleven dollars a week, but the excessive toil soon sends them to the hospital and an early grave. These small rooms are very deficient in ventilation, the inmates being compelled to inhale the noisome smell, and the poisonous dust and steam arising from the goods when being pressed, during their many hours of close confinement and arduous toil, which is very detrimental to their health. This state of affairs is not confined to the tailoring business, but exists in most factories where women and children are employed, such as cigar, paper-box, shoe factories, and many others, where all sanitary laws are utterly disregarded. A commission of practical workmen ought to be appointed, and authorized by law, whose duty it should be to inspect every establishment and note all violation of existing laws, and make report to the Governor annually. That class of tailors who do fine and skillful work, are organized and have a tailor's union, and while they command a fair compensation for their labor, have a drawback in not having over six months' employment during the year, and when at work are compelled to work excessively long hours, and Sunday included.

11,969. *Engineer, Westmoreland county.*—One of the greatest evils that exists in this region is the introduction of Hungarion labor, who so overcrowd the labor market that it is impossible to obtain steady employment. They mine coal, and draw coke, and are the willing tools of the bosses, and in slack times are kept employed while old residents and citizens of the United States are discharged. These people are a disgrace to our country, and live more like animals than human beings. They will take their wives and daughters with them to draw coke, and will work them from midnight until noon. They will live huddled together ten or twelve in a couple of rooms, and are beastly in all their habits. They hang their ham of meat outside of an up-stairs window, winter and summer, and cut it as they require it, and leave it there. They merely stay here three or four years, and accumulate a little money, when they return to their own country.

LABOR TROUBLES IN PENNSYLVANIA DURING 1883.

The previous reports of the Bureau gave the history of the labor troubles of Pennsylvania from a very early period to the close of the year 1882, which are continued in this report for 1883. In reviewing the strikes and lockouts of the past year, we find that they were principally confined to the coal, steel, glass industries, and telegraph lines. The trouble at steel-works was only participated in at one establishment. There may have been minor strikes of local character in different localities which did not assume such proportions as to merit our consideration. We invite particular attention to the practical working of the "Voluntary Trade Tribunal act" in some of the disputes herein recorded, especially in bituminous coal districts.

Bethlehem Steel-Works.

One of the first labor troubles of importance that occurred during the year took place between the Bethlehem Iron Company, Bethlehem, Northampton county, and their employés, a sketch of which is herewith published as furnished by both parties to the question at issue. Having received the employés' version of the reason for the strike or lockout, the Bureau communicated with the company, and received the following reply January 5, 1884:

DEAR SIR: In reply to yours of 18th ult., we have to say that the trouble with the workmen of this company in July last came from an effort of the Amalgamated Association of Iron-Workers to manage and control the operations of this company. The question of wages had no part in it.

The issue was made on a peremptory demand, by a committee of the Amalgamated Association, for the re-instatement of a man who had been discharged for a willful violation of a long-established and accepted rule. On being told that this man could not be taken back, the reply of the committee was "that the works should stop," which followed in due course.

On resuming operations this company only employed non-union men.

Very respectfully yours,

THE BETHLEHEM IRON COMPANY.

The employés make a statement to the effect that the trouble originated in an attempt on the part of the company to disorganize the Amalgamated Association of Iron and Steel-workers in this district, which arose in a difficulty between two employés, one of whom was a member of the Association and the other was not. It was a private quarrel and had nothing whatever to do with the rights and privileges of the company. Suit was brought before a justice of the peace, and a judgment rendered in favor of the member of the Association, whereupon the party in favor of whom judgment had been decreed was discharged from the employ of the company. A committee representing the Association waited upon the representatives of the company and demanded that the order discharging their fellow-workman be revoked. The company, through its agents, made reply

in substance that rather than be dictated to by the employés they would shut down the mills and furnaces; and, suiting the action to the word, the order was given to shut down.

This happened on or about the 28th day of June, 1883, and from that time until about the 20th day of July, work was totally or partially suspended. During that time over two thousand men and their families were obliged to subsist on the charity of landlords, store-keepers, and friends, few of the employés being fortunate enough to have a bank account.

The contest was an unequal one. It was simply a battle between "too much and not enough," and as usual in such cases, "not enough" was obliged to submit. Those who agreed to resign from the Association were re-employed by the company. It will be noted that in this case the question of wages or hours of labor were not in controversy. The company acted on the presumption that the members of the association were assuming an offensive, dictatorial power in demanding the re-instatement of one of their number whom the company thought proper to discharge. On the other hand, the members of the association felt that they were in duty bound to abandon their work when one of their number was discharged without due cause, and in the absence of due cause in this instance they acted on the rule of the order, "That an injury to one is an injury to all." There is little probability that cases of this kind will be settled by arbitration, and fortunately for the welfare of society, disputes of this nature will, in all probability, be "very few and far between."

In reviewing the above-cited labor trouble, the question arises whether it was a "strike of the men" or a "lock-out by the bosses." As soon as the order for the shut-down had been made, the telegraph was put in use to convey to the outside world the information that the employés had struck against a reduction in wages. These dispatches were true, except in the following particulars: First, As we have before shown, there was no issue about wages. Second, There was no "strike" on the part of the employés, they having been "locked out" by the company which was the responsible party, it having, without just cause but simply as an exhibition of power, discharged an employé. We make this explanation that the public may know where to praise or censure. The general public is opposed to strikes, and is prone to condemn employés every time a strike is inaugurated, therefore we can see no valid objection to the policy of calling the attention of the public to lock-outs inaugurated by employers.

Strike of the Telegraphers.

It may not be amiss to devote a little attention to the trouble between the Western Union Telegraph Company and its employés. The trouble was national in its effects, and Pennsylvania lays no claim to praise nor deserves censure for the action of either of the parties, but it may be said that had all the telegraph employés engaged in the strike, that the loss to the business interests of our State would have been second to that of no State in the Union.

It may be well, therefore, for the Legislature to enact some law that in the future will not leave our merchants exposed to the uncertainties arising from the actions of those who control such an indispensable medium of communication.

The Western Union in Pennsylvania controls about thirty-four thousand five hundred miles of wire, connected with about one thousand one hundred and fifty stations, to maintain and operate which requires the employment of about one thousand four hundred persons.

We can find no record of the number of messages credited to Pennsylvania, but the last annual report of the company for 1882 gives the total for entire line at about thirty-eight million.

Pennsylvania contains about one eleventh of all the company's stations, and furnishes employment to about one thirteenth of the employés, which, if we consider the number of States and Territories crossed and recrossed by the three hundred and eighty thousand miles of wire controlled by this company, may give some idea of the number of messages that should be accredited to this State. The number of operators and line-men employed by the company amounts in all to about nineteen thousand, about twelve thousand of whom belong to the "Brotherhood," or to the Knights of Labor. The wages of the operators had been reduced about twenty-five per cent. during the past ten years. They were paid at the rate of so much per *month*, and the month included Sundays. The day men were required to work one Sunday in six, and the night men were allowed to be "off" one Sunday in eight. To remedy this, the "Brotherhood" appointed a committee to wait upon the managers of the Western Union, but the said managers refused to treat with them, informing the committee that they were ready to treat with them as *individuals*, but not as *representatives* of any *labor organization*. The Brotherhood claimed that their right to organize was as justifiable as the right of organization claimed by the company; that the consolidation of telegraph companies under one head threatened to deprive the operators of a reasonable profit for their labor, by destroying by the process of centralization all markets which otherwise would have been open to them for the sale of their skill and labor. The company turned a deaf ear to all arguments, and, as a result of a failure to adjust the dispute, the operators at noon of July 18, 1883, abandoned their keys and instruments, and struck for a fifteen per cent. advance in wages and allowance for Sunday work. The strike of the operators was followed by that of the line-men, but the original intention of the Brotherhood of ordering out the operators in railroad service was abandoned. The strike lasted till August 17, when it terminated disastrously, the operators having been betrayed in some instances by some of their number returning to work, by reason of offers of personal advantage. In order to shield the returning operators from the reproaches of those who remained true to the Brotherhood, the managers of the company transferred them to localities where there was greatest pressure of business and little possibility of their treachery becoming known. The Brotherhood failed to receive the outside

pecuniary aid which had been offered in advance of the strike; the executive officers were hourly petitioned by impecunious operators, with large families and no income, to be allowed to return to their instruments. The managers of the company allowed insinuations to be made that all who returned should be liberally dealt with in regard to the matter both of wages and hours; and so, pressed and harassed on all sides, the order was given to resume work.

This has been called the greatest strike ever recorded in the United States. It settled one thing beyond dispute, viz: The power of the Telegraph Company to compel acceptance to its decrees. The right or the justness of the operators in demanding what they did was not settled, and we may, therefore, look forward to a greater struggle in the future. It would be impossible to estimate the losses caused by this strike, since the delay of one telegraph message might have brought ruin to him who depended upon its immediate transmission. Numerous actions to recover damages from the company have been entered in the several courts of the country. As these actions will throw new light on the question of losses, we prefer to wait till a time in the future before attempting to make an estimate.

Pittsburgh District Miners.

On May 1, 1883, the miners of the railroad mines in the Pittsburgh district quit work in resistance to a reduction in wages to three cents per bushel. The number of men affected by this suspension was about six thousand, and the number of collieries about fifty-four.

THE MINES AND MEN.

The different mines of the district and the number of men that are employed are as follows, six of the mines being on the Pittsburgh, Virginia and Charleston, six on the Saw-Mill Run, two on the Pittsburgh and Lake Erie, sixteen on the Pan Handle, six on the Chartiers Valley, three on the Allegheny Valley, three on the Pennsylvania railroad, and twelve on the Baltimore and Ohio:

<i>Mines.</i>	<i>Men.</i>	<i>Mines.</i>	<i>Men.</i>
Courtney,	70	Phoenix,	40
Black Hill,	25	Bells,	200
Buffalo,	105	Grant,	150
Cliff,	110	Camp Hill,	65
Keeling,	160	Fort Pitt,	50
Castle Shannon,	150	Pittsburgh Union,	50
Fox,	50	Cherry,	40
Wettingel & Gormley,	31	Jackson,	35
Enterprise,	200	National,	75
Venture,	125	Oakdale,	100
Eclipse,	113	Willow Grove,	90
Chess,	60	Laurel Hill,	110
Montour,	200	Brier Hill,	90
Beach Cliff,	100	Primrose,	120

<i>Mines.</i>	<i>Men.</i>	<i>Mines.</i>	<i>Men.</i>
Midway,	130	Alpsville,	150
Walnut Hill,	100	Blythe,	115
Glendale,	50	Shaner,	150
Nixon,	80	Armstrong,	100
Glass,	70	Scott Haven,	200
Summer Hill,	86	Amieville,	142
Bower Hill,	45	Penn Gas No. 4,	150
Slope,	75	West Newton shaft,	100
Hampton,	138	Youghiogheny,	90
Duquesne,	119	Waverly,	85
Turtle Creek, (1 and 2,) . .	300	Eureka,	55
Sandy Creek,	160		
Union,	150	Total men,	<u>5,934</u>
Plum Creek,	165		
Osceola,	115		

The miners claimed that their labor did not net them more than about thirty-three bushels per day—run of the year—which, paid for at the proposed rate, would compel them to eke out a subsistence on ninety-nine cents per day.

The operators claimed that the supply in coal was greater than the demand, and the unusual anxiety to secure orders had produced a decline in prices.

Conferences and arguments were of no avail, always ending the same, viz: The operators offering three cents per bushel for coal mined, and the miners demanding three cents and one half per bushel.

Mass-meetings among the miners were held at various places. The result of these meetings seemed to unify the miners in a determination to hold out against any and all reductions in wages.

On the part of the operators, some of them expressed a willingness to employ their miners at the old rates. Others among the operators declared their readiness to do so whenever the condition of trade would permit. It was resolved, finally, to test the matters in dispute under the "Voluntary Trade Tribunal Act." The miners were the first to petition for the tribunal, and the operators met them in the same spirit of candor by selecting the following-named gentlemen to act for them: W. A. McIntosh, A. J. Shulte, D. Reisinger, W. Schlenderberg, and T. C. Dickson. The miners selected to represent them the following-named gentlemen: Abraham Winders, John Semmens, Augustus Steiner, James Nelson, and Ebenezer Oliver, miners.

The tribunal jointly petitioned the court of common pleas of Allegheny county, on May 19, for license to perform the duties required by the act, which license was granted. The first session of the tribunal, on motion of Mr. Steiner, adopted the following resolutions:

First. That the miners resume work at once with check-weighman at a price subject to the decision of the tribunal.

Second. That the decision of the tribunal as to the price of mining shall take effect from the time of resuming work.

As soon as the meeting adjourned and the result was made known, information of the nature of the foregoing resolutions was conveyed to the miners (many of whom had by this time abandoned their houses and were living in tents) asking their acquiescence. On receipt of this information the miners struck their tents and resumed work.

On Monday, May 21, the committee again met, and after considerable discussion adopted the following resolutions:

Resolved, That a committee of four be appointed to visit the lake markets and ascertain the price at which Pittsburgh coal can be sold at Lake Erie ports, and the railroad freights on same from Pittsburgh. Also to ascertain the prices of other coals which come into competition with Pittsburgh, and the price paid for mining the same, and the cost of transportation to lake ports; also such other information as said committee may deem useful for this tribunal in the settlement of the subjects before them.

Resolved, That a committee of four be appointed to visit the operators in Pittsburgh and examine their books, with a view to ascertaining the prices at which coal has been sold during the past three years and the prices paid for mining during the same time. Also to investigate as to the cost of producing coal outside of the cost of mining.

Resolved, That said committees report to this tribunal at a meeting to be held at the call of the chairman.

The names of the mine-s' traveling committee, Abraham Winders and Ebenezer Oliver. Operators' committee, W. A. McIntosh and D. Reisinger. Pittsburgh committee—miners, August Steiner and John Semmens; operators' committee, A. J. Schulte and W. Schlenderberg.

The lake region delegates started on Tuesday morning for Cleveland, Ohio. The Pittsburgh committee also commenced their labors.

The meeting adjourned to reconvene at the call of the chairman.

The adopting the above line of action by the tribunal indicated that they were determined to make an earnest effort to settle their differences among themselves without the necessity of calling in the services of an umpire. But however laudable their motives, and however worthy of respect their intentions to settle all matters in dispute might have been, they were obliged to confess that the information they obtained but served to strengthen the feeling of partisanship and vices natural to men in their position. In this strait they were obliged to seek the service of some unbiassed person to act as umpire. Their choice unanimously fell upon John R. McCune, Esq., of the Union National Bank of Pittsburgh.

We here present the article of agreement under which the decision was left with the umpire.

We, Augustus Stinner, Abraham Winders, John J. Semmens, John Parker, and W. J. Callahan, representatives of railroad coal miners of the one part, and D. Reisinger, Thomas C. Dickson, George W. Schlenderberg,

A. J. Schulte, and William A. McIntosh, representatives of railroad coal operators of the other part, under the provisions of "voluntary trade tribunal act of 1883," have submitted and referred, and do hereby submit and refer unto the umpirage and decision of John R. McCune, Esquire, the umpire of the trade tribunal for the fifth judicial district, the following subject matter, that is to say :

The question in dispute is the price of mining, the operators offering three cents per bushel, and the miners asking three and one half cents per bushel of seventy-six pounds, for all coal running over a one-and-one-half-inch screen, nothing to be paid for nut and slack. The umpire's decision shall be binding from May 21, 1883, until the 1st of October, 1883. His decision and determination upon the same shall be binding upon us, and final and conclusive upon the question thus submitted, and we pledge ourselves to abide by and carry out the decision of the umpire when made.

Witness our hand and seal, this 23d day of June, A. D. 1883.

(Signed)

D. REISINGER,
A. J. SCHULTE,
WILLIAM A. MCINTOSH,
THOMAS C. DICKSON,

AUGUSTUS STINNER,
ABRAHAM WINDERS,
JOHN S. SEMMENS,
JOHN PARKER,
W. J. CALLAHAN.

Mr. McCune, on being made acquainted with the action of the tribunal, agreed to accept the position of umpire, and in accordance herewith subscribed to the following oath :

John R. McCune, being duly sworn, deposes and says that as umpire, chosen by the Railroad Coal Trade Tribunal, of the Fifth judicial district of Pennsylvania, organized under the Voluntary Trade Tribunal act of 1883, he will impartially, and according to the best of his ability, decide the question submitted to him in the foregoing paper, and this as he shall answer to God at the great day.

(Signed)

JOHN R. McCUNE.

Sworn and subscribed before me, this 29th day of June, A. D. 1883.

A. M. IMBRIE, *Notary Public*.

The nature and substance of the testimony are so well shadowed forth in the award of the umpire, that we herewith present a copy of that document.

To the Coal Trade Tribunal of the Fifth judicial district of Pennsylvania :

GENTLEMEN: The question now pending before your tribunal, and submitted to me for my decision as umpire, relates solely to "the price to be paid for mining from May 21, 1883, to October 1, 1883, the operators offering three cents, and the miners demanding three and one half cents per bushel of seventy-six pounds, for all coal running over a one and-one-half inch screen. Nothing to be paid for nut and slack.

In considering the question submitted for my decision, I have carefully examined the statistics relating to the cost of production, and prices obtained for coal sold during the past three years, which I have collated and submitted with the joint approval of both sides of the tribunal. The separate papers presented by the workmen on one side, and by the employers on the other side of the question at issue, have likewise been carefully examined in the light of oral arguments presented by various members of the tribunal at your last meeting.

All the information which I have been able to glean appears to demonstrate conclusively that the railroad coal trade is experiencing a period of depression, and affords but meager returns to those who are engaged in the business. Perhaps this condition may be largely due to over-production by manufacturers of iron and other commodities, which involve the consumption of large quantities of fuel, or it may be chargeable to the unusual conservatism now pervading the whole country, which has begotten extreme caution in buying, or possibly the lessened activity in the construction of railroads may be largely responsible for it; but whatever may be the cause, the fact of depression in what is known as railroad coal trade is unmistakable.

Reasons for the Award.

The supply is greater than the demand, and the unusual anxiety to secure orders has produced a decline in price. The idea that the reestablishment and rigid adherence to former prices by coal producers would compel acquiescence on the part of purchasers is believed to be fallacious. The large fraction of the coal trade of the district which finds a market at lake ports has encountered a vigorous and growing competition from points less remote from that market, with correspondingly cheaper transportation, and where lower rates are paid for mining than prevail in the Pittsburgh district. Although the superiority of our coal is conceded, the great reduction in price which these coals are offered has attracted many buyers. In order to retain any considerable portion of this trade in the face of existing competition, concessions must be made from former prices. If this trade were abandoned, the fierce competition which would be inaugurated for the home trade must necessarily reduce prices so low as to drive a large part of employers and workmen to some more lucrative occupation.

The inexorable law of demand and supply will assert itself.

Assuming that reduced prices for coal in the near future are unavoidable, it remains to be determined upon whom this reduction shall fall.

No country can be regarded as truly prosperous when the mechanic and laborer are not fully rewarded for their skill and toil. And inasmuch as the miners have already submitted to one half cent reduction per bushel in their pay during the past year, a further abatement of another half cent would bear heavy upon them, and should not be demanded unless absolutely essential to the continuation of the business. On the other hand, capital will abandon a business that does not afford a reasonable profit for

its use. Benevolence will not induce men to long continuance in business without reasonable profit.

The statistics furnished your umpire with the approval of both sides of the Tribunal, demonstrated that the coal business under existing conditions, with three and a half cents for mining, does not furnish that remuneration. The fact is unpleasant, but cannot be gainsaid, and the surrounding conditions imperatively demand concession on both sides in order to allow a continuance of the business.

The assertion that the cost of living is equally as great as when the price for mining was four cents is believed by the umpire to be a mistake. Rents may not be lower, but there has certainly been a reduction in the cost of provisions, clothing, and dry goods which will measurably mitigate the hardship involved in the reduction of wages.

It is the opinion of your umpire that the amounts specified for dead work, royalty, and car service in the summarized statements of your statistics may be somewhat reduced, and that the operators may pay three and a quarter cents and continue their business at a small profit. The returns at present will doubtless be meager and unsatisfactory to the operators, but it is a time when business usually yields reduced profits, and it is hoped that an abundant harvest of cereals will soon be assured and beget a general improvement in trade which will be fruitful to all who are interested in this traffic.

The decision of your umpire is that the price paid for mining should be three and a quarter cents per bushel of seventy-six pounds for all coal running over a one-and-a-half-inch screen, and that nothing be paid for nut coal and slack.

JOHN R. McCUNE,
Umpire.

PITTSBURGH, *July 3, 1883.*

On the part of the miners the above award met with ready and universal acceptance. The same may be said of most of the operators, a few only showing a disposition to refuse to abide by the decision of the umpire. Work was resumed at the rate fixed by the umpire, but as the decision was binding only to the 1st of October, 1883, it was expected that the month of September would inaugurate a trouble concerning wages among the miners that would demand the greatest prudence and finest diplomacy to prevent a strike or a lock-out after October 1. It appears that the rates for mining have been from a fraction of a cent to a full cent higher in the fall and winter months. On this occasion it was determined by the operators that the rates for fall and winter mining should be the same as that fixed by the umpire for mining during the summer season, viz : $3\frac{1}{4}$ cents per bushel. The miners demanded $3\frac{3}{4}$ cents per bushel after October 1. In order to avoid any outbreak it was deemed advisable to present the matter to Mr. John R. McCune, the official umpire, who, after listening to the parties representing operators and miners, respectively, and, on full examination of all

data and statistics relative to the subject-matter in dispute, made his award in September, allowing the miners $3\frac{1}{2}$ cents per bushel for coal mined by them from October 1 to April 1, 1884. This award, like the first, was accepted by the parties concerned, and, in consequence of the decision having been given before October 1, not a day's labor was lost to employer or employé.

In perusing the accounts of the various labor troubles—their origin, progress, and results—we find great consolation in being able to show that there was less loss of time and money to both operators and miners, less crimination and recrimination, and more harmony and sound business sense than there could possibly have been had the prejudices of the parties in interest prevented them from seeking the aid of the Voluntary Trade Tribunal act, which now that it has been successfully tried, should encourage employers and employés alike to seek the benefit of its provisions in the settlement of disputes arising from the question of wages.

Fourth Pool Coal District, Monongahela River.

The miners of the Fourth Pool of the Monongahela river coal district were about to inaugurate a strike for an advance of one fourth of a cent per bushel, from two and three quarters to three cents, which was to take place on the 17th of November, 1883. On the 15th of the month, the general officers of the Miners' Association met the operators, and it was agreed at the meeting that the miners might continue to work on and after the 15th, "subject to arbitration." The board, which was constructed and known as the "Coal Trade Tribunal of the Monongahela River," convened on the 23d of November, and again on the 4th of December, and finally adjourned on the 13th of the latter month, having agreed to disagree, and by mutual agreement submitted the question in dispute to an umpire, in the person of Joseph D. Weeks, Secretary of the Western Iron and Steel Association, who rendered his decision December 22, which reads as follows:

PITTSBURGH, December 22, 1883.

To the Coal Trade Tribunal of the Monongahela River:

GENTLEMEN: I acknowledge the receipt (December 17) of the letter of your assistant secretary, notifying me of the failure of your Tribunal to reach an agreement upon the question before it, and submitting the same to me for decision. I also acknowledge the receipt on the 18th instant of the testimony taken before the Tribunal.

The question submitted for decision is as follows:

"What is an equitable price for mining coal in the Fourth Pool on the Monongahela river as compared with the price paid in the Second Pool?"

I need scarcely state that the question you have asked me to decide is not whether two, two and a half, or three cents per bushel shall be paid for mining coal in the Fourth Pool, but how much less per bushel shall be paid for mining in the Fourth Pool than in the Second. It was conceded in your discussions that the relative conditions of the two pools justify a difference in the rates. The question is, what shall it be? The claim of the

members of your Tribunal representing the operators is that it should be one cent a bushel; of the representatives of the miners that it should be one half a cent.

For quite a number of years the difference between the rates of mining in the two pools has been one half of a cent per bushel, and there is nothing in the testimony to indicate that this difference has been regarded as unjust by either party until within a very recent period. In view of this fact, it is clearly incumbent on the party asking a change to show by affirmative testimony that such changes have taken place in the relative conditions of the two pools as to justify a change in the relative rates of mining. The testimony taken shows no sufficient reason for making such a change. I am, therefore, compelled to award *that the price of mining coal in the Fourth Pool of the Monongahela river shall remain one half a cent per bushel less than the price paid in the Second Pool.*

Respectfully,

JOSEPH D. WEEKS,
Umpire.

There are twenty-two mines in the Fourth Pool, at which about two thousand men are employed. A convention was held January 1, 1884, at Wood's Run, Washington county, attended by representatives from each mine in the pool, for the purpose of discussing the situation, and it was decided that they would stand out for the three cents fixed by the umpire. A few mines continued to work at the old rates of two and three quarter cents per bushel, which caused some agitation among the miners during the month of January, who made strenuous efforts to have the fixed price of the award paid uniformly in all the mines. We have no evidence, however, that a strike occurred.

Du Bois, Clearfield County.

A strike occurred at this place during the year 1883, in which the employés of sixteen mines were engaged, numbering in all about twenty-five hundred persons, which lasted about eight weeks at some of the works, and about twelve weeks at others. In order that the difficulty may be better understood in all its bearings, it is necessary that we go back in the history of these mines a few years.

For some months prior to the 1st of June, 1880, the miners in Du Bois were receiving fifty cents per ton of two thousand two hundred and forty pounds run of mine, while the miners at Bethlehem and Reynoldsville were receiving fifty-four cents per ton of two thousand pounds screened coal. In the spring of 1880 Bell, Lewis & Yates commenced the erection of a large number of coke ovens, also the making of considerable changes and improvements in and around the mines, which necessitated a suspension of mining operations for several weeks. When they were ready to suspend for their own convenience, they put up notices notifying the miners that on and after the 1st of June, 1880, that the price they would pay for min-

ing would be thirty-six cents per ton of two thousand pounds run of mine coal, which price they claimed would be equivalent with the price paid at Reynoldsville and Bethlehem, allowing Reynoldsville and Bethlehem one third for nut and slack. The Du Bois men struck, and, of course, the company were satisfied that they should, as they had, from necessity as before stated, to suspend. The Du Bois men asked Reynoldsville men to quit work and demand fifty cents per ton run of mine; this they absolutely refused to do, saying they were satisfied with their method of mining, and the price paid them for it. Du Bois men, seeing the uselessness of trying to hold out, accepted the reduction on the 1st of July, after being out one month. So the operators made a good investment on their own necessary suspension. At this settlement the company claimed to be perfectly satisfied, *i. e.*, if their superintendents told the truth. They allowed that there would be no more trouble on account of the difference in prices between Reynoldsville and Du Bois, as the rates of prices were then equal, and in case of an advance being given, each should advance in equal ratio.

The men worked on quietly until the middle of January, 1881, at which time they concluded (in the meantime the price of coal had gone up in market) to demand an advance of fourteen cents per ton. And after a suspension of two weeks they accepted nine cents' advance as a compromise, making the price paid at Du Bois forty-five cents per ton run of mine, and at Reynoldsville sixty-seven cents screened coal. In May, 1881, Bell, Lewis & Yates notified their men of a reduction of nine cents, bringing the price again down to thirty-six cents per ton. Their men struck at once against the unjust imposition, and the Sandy Lick Coal Company, either from policy or a sense of justice, and certainly for reasons best known to themselves, refused to offer any reduction to their men. Consequently, after a suspension of three weeks the company withdrew the notice of reduction and resumed work at the forty-five cents per ton. In September of the same year, the men finding that the conditions of the coal markets were such as to entitle them in justice to a further advance, demanded ten cents and received five cents' advance, bringing the price in Du Bois up to fifty cents per ton run of mine, and seventy-five cents per ton screened coal at Reynoldsville. Now we were back to the old prices of May, 1880, in Du Bois, with the addition of having two thousand pounds for a ton instead of two thousand two hundred and forty pounds, as it was at that time, and the price at Reynoldsville was at this time twenty-one cents higher than it was on the first of January, 1881. Up to this time the price paid at Reynoldsville seemed to be quite satisfactory to the Rochester Company. Consequently, we had concluded, as matters then stood, that Reynoldsville prices would not be again used as an excuse for the purpose of reducing the Du Bois men. But we were soon to be undeceived, for in the early part of the year 1882, A. J. McHugh, superintendent for the Rochester Company, told some of the men at the mine that it was impossible for Bell, Lewis & Yates to compete in market with the Rey-

noldsville companies, as they—the Reynoldsville companies—were getting their coal mined at the rate of thirty-seven and one half cents per ton run of mine while the Rochester Company were paying fifty cents per ton. When asked for an explanation, he claimed that one half the coal in the shape of nut and slack went through the screens instead of one third that used to go through the same screens at the time of the adjustment of prices in 1880. He continued to harp on that string and to threaten his men that if they did not get the Reynoldsville men up to them in price he would reduce them by putting them on screened coal. A delegate convention was held in September, 1882, at Reynoldsville. The Du Bois delegates tried hard to convince the Reynoldsville delegates that they were working below the price paid at Du Bois. But the Reynoldsville men plainly told the Du Bois men that they were perfectly satisfied as they were and would ask no changes of their employers. So matters stood, with an occasional growl from McHugh, until the first of August, 1883, when the Fairmount Company, at Bethlehem, Clarion county, who had up to this time been mining run of mine coal at their No. 1 mine. Long Run, and paying forty-six and two thirds cents per ton, put in a back-action screen and notified their men that the price would be seventy cents per ton over said screen. Some of your readers may not understand or know what a back-action screen means.

For their information I will explain. The upper part is a chute without screen bars, and pitches at an angle of about forty-eight degrees, at the lower end of which there is an iron vertical back, then there is a small hole or opening for the coal to fall through; after falling several feet it strikes on the top of the screen bars which lie in an opposite direction and at an angle of thirty-five degrees. These bars are in three sections of eight feet each, and the lower end of first section there is a drop of eleven inches, at the lower end of the second section there is a drop of eight and one half inches, at the lower end of the third section there is a drop of five and one half inches. The coal when dumped into the chutes rushes down and strikes the vertical back; if any lumps stand the crash without breaking, they block up the opening, the same being designedly small; they are then pushed through with a long handspike. The coal then drops perpendicularly on the top of the screen bars and runs slowly into the cars. The object of this arrangement is, of course, to rob the miner. For no matter how large he may send his coal out of the mine, it must pass through the above process, and he only gets paid for what little does not break small enough to go through the screen. The company can and does sell the nut, and they manufacture the slack into coke, and they get both nut and slack mined for nothing. The men at Long Run mine refused to accept the change and demanded forty-six and two thirds cents per ton, their old price, and that they be allowed to put a check-weighman on the tippie to see that they got justice in their weight. This action of the men so incensed Mr. Shaffer, the superintendent, that he absolutely refused both demands. The news of this man Shaffer's action caused considerable ex-

citement all through the low grade district, and on the 1st of September an act of Assembly making it obligatory for mine operators to pay miners for all merchantable coal mined by them whether in the shape of lump, nut, or slack; also compelling operators to allow check-weighmen on the tipples came in force.

The miners employed by Powers, Brown & Co. and the Hamilton Coal Company, at Reynoldsville, demanded that their employers should comply with the law and pay them for all merchantable coal mined by them. This the companies absolutely refused to do, law or no law. They did not deny that they were getting their coal mined cheaper than the Du Bois operators were, but claimed that the Du Bois operators were making more money out of their companies' stores than what made up the difference in the price of mining, and as they had no stores at Reynoldsville, but allowed their men to buy their goods where they choose, that their men were better off than the Du Bois men were; and that if they were compelled to pay the same price that Bell, Lewis & Yates were paying, that the fact that the Du Bois companies profited so much through the store that they would still be able to undersell the Reynoldsville operators in the markets. Consequently the men struck, for in their ignorance they believed that corporations, like individuals, were obliged to obey the laws of Pennsylvania. So matters stood for some time. One morning A. J. McHugh called the attention of some of his men at the mine to the fact that Reynoldsville men were out against the screens, and told them that if Reynoldsville men were successful in abolishing the screens all would be right; but if the Reynoldsville men were defeated and had to return to work over the screen, that he could assure them they would have to mine screen coal too. Reynoldsville men, hearing of McHugh's threat, demanded that Du Bois men should quit work immediately, or they would return to work and bring Du Bois men down to where they were, claiming as an excuse for their conduct that Du Bois operators were filling a part of the contracts belonging to Reynoldsville. The Du Bois men, seeing no other way out of the dilemma, suspended work. They were well satisfied with the price they were receiving and asked no advance. By suspending they no doubt played into the hands of the enemy; for in a few weeks after the suspension took place Mr. Bell, of the Rochester company, stated (according to the *Buffalo Express*) that he had been waiting for some time for an opportunity to reduce his men. But he would not have succeeded so easily in doing so had not some of McHugh's black-leg friends gone in to work; and some of the miserable miscreants at Reynoldsville, who were chiefly instrumental in getting the men out in the first place, had signed an iron-clad contract and returned to work, thus causing our defeat at a time when victory was about to perch on our banners; consequently the Du Bois men had to accept a reduction of twenty per cent., and apply as strangers for their employment. And then very many of the men who were employed at the Rochester mine previous to the suspension were refused, presumably for the reason that their store

bills were not high enough while employed by the company to satisfy the avariciousness of their employers. But be it said to the credit of the Sandy Lick company that although they followed in the tracks of the Rochester company in the matter of reduction, they employed all of their old hands who applied for work.

Glass Industry.

This industry has suffered great loss during the past year by reason of the non-concurrence of the employers and employés in the matter of wages, extra service, and the regulation of apprentices.

The glass industry we will here treat of under two separate heads, one known to the trade as *window-glass manufacturers*, the other as *flint-glass manufacturers*, each with its separate organization of employers and employés.

It had been the custom in the window-glass industries to hold a conference during the month of August to arrange the wage rate for the succeeding year—the working year consisting of ten months; the factories, on account of extreme heat during the months of July and August, remaining closed and unproductive.

The wages of the employés has been governed by a scale agreed upon between them and their employers, each party choosing representative men with full power to act on all questions pertaining to changes in the wage schedule, provided, of course, that nothing arbitrary or out of the proper sphere of their duties was subject-matter for conference. The wage rate has heretofore been adjusted in accordance with a scale which included *quality, number of square inches, and strength*, either *double* or *single*. We append the scale adopted by the National Window-Glass-Workers' Organization, July 14, 1881, reference to which will enable the reader to more fully comprehend the ratio of reduction insisted on by the employers. This year, by mutual consent of Isaac Cline, the president of the Window-Glass Association, and James A. Chambers, the chairman of the manufacturers' conference committee, the meeting usually held in August was postponed until September 22. This postponement was satisfactory to the employés, as they did not feel unduly anxious about the question of a wage re-adjustment or at least did not wish to show too great an anxiety. To the manufacturers the postponement was all that could have been desired, since it enabled them to send a representative to Belgium to negotiate for the purchase of all available glass and its exportation to this country, the better to enable them to fill prior contracts in case the emergency caused by a disagreement between them and their employés would cause a decrease in stock of the kind, amount, and value contracted for by wholesale jobbers.

September 22 the conference committee met. The manufacturers were represented by James A. Chambers, (chairman,) of Pittsburgh; Pennsylvania, N. C. De Pauw, of New Albany, Indiana, T. D. Catlin, Ottawa, Illinois, Thomas Wightman and Joseph A. Stewart, both of Pittsburgh, Penn-

sylvania. The employes were represented by Allen M. Hammett, (chairman,) Andrew Burt, John H. Fees, John G. Schlicker, and James Campbell, all of Pittsburgh, Pa. The schedule of wages adopted in 1881 was presented by the employes' committee with no demand for an increase. The manufacturers, through their committee, insisted on a reduction, which we here present, together with the wage schedule of 1881.

Adopted by the National Window-Glass-Workers' Association, July 14, 1881.

SECOND QUALITY	Square Inch.	Per box of 100 feet.	D. S.	Square Inch.	Per box of 100 feet.
6× 8 to 12×18	48 to 216	\$0 50	6× 8 to 8×10	48 to 80	\$0 73
<i>First quality.</i>			8×11 to 10×15	88 to 150	87
6× 8 to 8×10	48 to 80	56	10×16 to 12×18	160 to 216	1 02
8×11 to 10×15	88 to 150	60	12×19 to 16×24	228 to 384	1 10
10×16 to 12×18	160 to 216	68	16×25 to 24×36	400 to 864	1 70
12×19 to 16×24	228 to 384	72	24×37 to 30×41	888 to 1,230	1 93
16×25 to 24×30	400 to 720	87	30×42 to 36×51	1,260 to 1,836	2 60
24×31 to 24×36	744 to 864	1 02	36×52 to 39×60	1,872 to 2,340	3 14
24×37 to 26×40	888 to 1,040	1 11	40×60 to 40×65	2,400 to 1,600	4 84
26×41 to 28×44	1,066 to 1,232	1 25	40×66 to 40×70	2,640 to 2,800	5 75
28×45 to 32×49	1,260 to 1,568	1 75	All above.		6 65
32×50 & upw'ds	1,600 and upwards.	2 17			

THIRD QUALITY—*Third Quality.*

8×10 first quality, into 8×10 to 16×24. Third quality, 8×10 first quality.
 10×15 “ “ “ 16×25 to 24×30. “ “ 10×15 “ “
 12×18 “ “ “ 24×31 to 24×36. “ “ 12×18 “ “
 16×24 “ “ “ 24×37 to 26×40. “ “ 16×24 “ “

And upwards.

FOURTH QUALITY—*Single.*

8×10 second quality, into 8×10 to 12×18. Fourth quality, 8×10 second quality.
 8×10 first “ “ 12×19 to 16×24. “ “ 8×10 first “ “

And upwards.

Single strength gatherers are to be counted at 65 per cent. on what blowers' wages amount to. Gatherers of double strength shall receive 52½ per cent. of blowers' wages for 40×60 and above, and 55 per cent. of blowers' wages for 39×60 and less. The price for double strength cutting shall be 40 cents per box of 100 feet. Single strength cutting 28 cents per box of 100 feet. Flatteners shall receive 25 per cent. on what the blowers make—to be counted after all the percentages the blower is entitled to are added. In booking all sizes shall be booked upward where the surface inches exceed the stated size in the bracket below.

Reduction demanded : *30 per cent. on double strength all around, cutters and all ; 15 per cent. on single strength all around, cutters and all. Flat-*

teners to receive 40 per cent. of a reduction on double strength, and 25 per cent. off for single; abolishment of the forty-eight box limit. Gatherers to carry out rollers and dip out pots. The apprentice system to be entirely under the control of the manufacturers.

The reasons assigned by the manufacturers in support of the reduction were: "No money in the business;" "reduction of tariff duties;" "foreign competition;" "large stocks on hand;" "employés make too much money—more than any other class of skilled mechanics;" "dictatorial spirit and arbitrary laws of the Window-Glass-Workers' Association."

In reply, the employés contended, "There is money in the business, as shown by census report of 1880, each establishment in the business making a profit of over \$15,000. Since 1880, American manufacturers have added two hundred and eight pots and \$300,000,000 in additions and improvements, and yet only supplied seventy-two per cent. of the home consumption, while in 1880 they supplied seventy per cent., and have not kept pace with the increased consumption, as they lost two hundred and ninety-one thousand boxes in the idleness consequent on the strike in New Jersey, (lasting from September to March, 1882-3.) There has been no reduction in the tariff on D. S., (double strength,) where the largest reduction is demanded, as the increase in the weight of boxes under the new schedule more than balances the decrease in price. Foreign competition amounts to little, as imports since 1880 have only increased from one million four hundred and twenty-nine thousand eight hundred and thirty-five fifty-foot boxes to one million six hundred and ninety-eight thousand five hundred and fifty-six fifty-foot boxes, or two hundred and seventy thousand seven hundred and twenty-one fifty-foot boxes, while consumption has increased during the same period from two million three hundred and sixty thousand three hundred and one to three million one hundred and forty-four thousand four hundred and sixty-nine, or seven hundred and eighty-four thousand one hundred and sixty-eight fifty-foot boxes. Union workers are more profitable, because forced by our laws and the imposition of heavy fines to be attentive to their work, and no factory in this country employing non-union workmen (only four in number) exceeds in production the Association limit of forty-eight one hundred-foot boxes, (four thousand eight hundred square feet) per pot."

In the matter of apprentices and the limitation of the same, it was claimed by the manufacturers that their right to control the hiring of apprentices was as valid and equitable as the right exercised by them when hiring skilled workmen, and that the action of the employés in claiming the right to control the number of apprentices was arbitrary and without the shadow of right.

The employés claimed that the apprentice system, in the hands of the employers, had been used to over-crowd the skilled labor market, thereby tending to reduce the wages of all the employés and also to produce an inferior quality of glass. The employés further contend that for the eight

hundred and fifty-four working pots, as estimated by the manufacturers, that there was one apprentice allowed by the employés for each and every gatherer at work, and that now there are one thousand one hundred and forty-three apprentices apportioned among the four trades combined in the manufacture of window-glass.

It will also be observed that the manufacturers demanded that the gatherers, should, in addition to their other duties, carry out rolls and dip outpots, this demand being based on the assumption that gatherers were but tenders and common laborers rather than skilled mechanics—to which the employés made answer as follows :

“The extra work the manufacturers demand of our members to perform is ‘dipping out pots and carrying out rollers.’ To make the matter plain to the public, it means that a gatherer of glass shall dip or ladle out the surplus glass in cases of broken pots, which is not a part of glass blowing, but, if anything, the work of a day-laborer. The carrying out of rollers means that the gatherer shall, after working eight or nine hours, carry from the factory to the flattening-house all the cylinders produced in the day’s work. As the flattening-house is often a distance of two and three hundred feet from the factory, this would compel the hard-worked, fatigued, and perspiring gatherer to make twenty or twenty-five trips of the distance stated, and it is needless to point out that during the winter months no human being should be subjected to any such health-destroying and death-producing exposure. As this work is now performed by two boys, whose wages amount to eight dollars per week, is it not astonishing that any cultured, refined Christian gentleman can be found who will insist that ten men shall carry out their rollers through the raw, biting winter winds, no matter how many colds are caught, how many consumptives made, how many constitutions are ruined, or how many glass-workers find premature graves? Again, it is stated that there are only three trades—that gathering is no trade, and that the designation ‘tending boy’ proves such assertion. The absurdity of such a statement is readily seen when a bit of history is called in for an explanation. The time was when a man performed all the work now divided among the four branches of the trade. He gathered his own glass, blew his cylinder, flattened his sheets, and cut his own glass. That was when the glass business was in its infancy, and the boy, or ‘snapper,’ as he was called, simply tended on the blower, that is, he put up the pipes, watered the block, and held the pole under the pipe during the ‘opening’ of the roller. That work was usually performed by a boy from ten to fifteen years of age, and he was, as designated, a ‘tending boy.’ At that time the largest roller blown was what is known in the trade as a ‘four lighter,’ requiring a lump of glass weighing from three to four pounds, and the cylinder containing three hundred and twenty square inches. The average weekly product then was from fifteen to twenty-one boxes per week. At present, the average size of the rollers blown is from 38 by 56 to 40 by 70, the former size containing 2,120, and the latter 2,800 square inches,

and requiring a lump of glass weighing from eighteen to twenty pounds in single, to from eighteen to forty-five pounds in double strength. The average weekly product now is about forty-five boxes. The gatherer of to-day is no more to be compared to the tending boy of the past, than is the stage-coach of the fifteenth to the lightning express train of the nineteenth century."

The several questions in dispute were argued ably by the gentlemen of the conference committee, but without coming to an agreement. As a last resort to prevent a lock-out, Mr. James Campbell, of the employés' committee, proposed that the matters in dispute be submitted to arbitration under the "Voluntary Trade Tribunal act." To this proposition the manufacturers would not agree, and the result of the conference was a total failure to agree, and from that time until the present the employés have been idle; fortunately for them, however, they were well organized, intelligent, and backed by a full exchequer. The manufacturers had, at a meeting held at Long Branch July 11, 1883, resolved, by a vote of thirteen to eight, "*That the treasurer be authorized to pay a sum not exceeding thirty dollars per man for each blower or gatherer brought over from Europe after August 1, 1883, provided the same be employed by some member of this association, and provided they are not workmen who have been in this country within the twelve months last past.*" This plan for obtaining workmen did not succeed, the manufacturers finding it more profitable to import the glass with which to fill their orders.

The following table will show the estimated losses and the number of employés and factories affected by the lock-out:

Estimated loss to employés from September 22, 1882, to January 1, 1884,	\$1,420,000
Estimated loss in value of product, same time,	3,114,000
Total,	<u>\$4,534,000</u>
Number of skilled employés affected,	1,700
Number of unskilled employés affected,	500
Total,	<u>2,200</u>

Number of factories affected, (furnaces,) fifty-nine, distributed as follows: Pennsylvania, thirty-one; Ohio, five; Illinois, five; New York, thirteen; Indiana, four; Michigan, one.

On December 18, 1883, the conference committee met again, the manufacturers making the following proposition:

"A reduction of thirty per cent. on double-strength blowers; a reduction of fifteen per cent. on single-strength blowers; single-strength gatherers, sixty-five per cent. of blower's wages; large double-strength gatherers, fifty-two and one half per cent. of blower's wages; small double-strength gatherers, fifty-five per cent. of blower's wages; flatteners, twenty-

two and one-half per cent. of blower's wages; single-strength cutters, twenty-two cents per box; double-strength cutters, thirty-three cents per box; abolition of all restrictions on product, mode of working, and employment of labor."

The committee on the part of the employés refused to accept the conditions proposed, but stated that they would agree to sign a contract to resume work immediately on last year's wages, the offer to hold good till January 1, 1884. We have not learned that any further efforts have been made towards a settlement of the dispute, and from present appearances the outlook is unfavorable. From the best returns we have been able to obtain, the manufacturers will be short nearly eight hundred thousand boxes of glass for the business year of 1883. It will be observed that one of the reasons for the reduction in wages and increase of hours was the "large stock on hand," as stated by the manufacturers. The employés denied this, and in proof of that denial point to the fact that the manufacturers were compelled to import glass to fill orders, and are now very short in stock. While it is to be regretted that these troubles were not settled, yet there is this pleasing feature attending the whole continuance of the lock-out, viz: That peace and harmony reigned supreme; there was no attempt at disturbance nor intimidation of any kind practiced.

On the 30th of January, 1884, the wage committees of the Window-Glass Manufacturers and the Window-Glass-Workers' Associations re-convened in the office of Thomas Wightman, on Wood street, and at one o'clock agreed upon a compromise. There were present the manufacturers' committee, Messrs. James A. Chambers, Thomas Wightman, Mr. Stewart, of Stewart, Estep & Co.; N. T. DePauw, of New Albany, Indiana, and G. T. Catlin, of Ottawa, Illinois. The glassblowers' committee consisted of Messrs. Hammitt, Campbell, Slicker, Burt, and one other. The committees met with the full determination of reaching a settlement, and a number of propositions were made by each, and finally they agreed that the wages should be based on the scale of prices for selling window glass; that is, if prices increase, the wages are to be increased accordingly, and if prices go down, a reduction will be made.

THE AGREEMENT

Is that the workmen are to receive last year's wages (union) up till the 1st of April. On the 1st of April, if any change in the discounts take place, an advance or reduction, as the case may be, the workers to be notified officially, and the same only to last for four weeks. Hence, every four weeks the wages will be regulated by the following scale: When glass sells at 60 and 20 per cent. discount, the wages are to be the same as paid last year, and as now demanded by the Glass-Workers' Union; when glass sells at 60, 10, and 5 per cent. discount, the workmen are to receive 5 per cent. of an advance; when it sells at 60 and 10 per cent. discount, the workmen are to be allowed an advance of 10 per cent.; when it sells at 70 per cent.

discount, a 5 per cent. reduction on the workmen's wages will be made, and and when it sells at 70 and 5 per cent., a discount of 10 per cent. will be made.

THE LIMIT RULE.

Instead of the limit being forty-eight boxes to the blower, it has been placed at forty-eight boxes to the furnace. Heretofore the pay for all the blower made over the forty-eight-box limit went to the association. Now, if the blower makes over forty-eight boxes he receives extra wages, and the association is paid the same amount. By this arrangement the manufacturer will pay double price for all glass made over the forty-eight-box limit. The apprenticeship question, over which there has been so much discussion, was not acted upon. The manufacturers accepted the matter just as it stands.

The agreement is to hold good until the 1st of July, 1884, the close of the blast.

After the conference adjourned the Window-Glass-Workers' Association held a meeting at their hall on the South Side, and heartily indorsed the agreement.



"THE FIRST BANDAGE" AS RECOMMENDED BY PROFESSOR ESMARCH.

TEMPORARY METHODS OF TREATING INJURED PERSONS UNTIL MEDICAL AID CAN BE PROCURED.

In the report for 1882, of Gwilym M. Williams, mine inspector for the middle district, Luzerne and Carbon counties, appeared a very interesting article on the "First Aid to the Injured," accompanied with a cut by Prof. Esmarch, entitled "The First Bandage," which we deem of sufficient importance to reproduce for the benefit of miners in the bituminous coal region, and to those employed in other branches of industry where men are liable to accident.

The Ambulance Law.

At all the collieries of this district stretchers have been procured, as required by this law, and are kept at convenient points near the mines; and at nearly all the collieries where men who reside at long distances away from the mines are employed, ambulances of the description given in the act have been procured. There are fourteen of these in the district altogether, which are kept at various points convenient to each group of collieries. This act has been the means of causing what was really needed at the coal mines to be procured, and through it the almost cruel practice of conveying injured persons home in rough coal wagons has already become obsolete.

First Aid to the Injured.

During the last two or three years I have been deeply impressed with the thought that a little more education regarding the best manner of treating injured persons, before and while being removed to their homes, and until the arrival of a physician, would contribute much towards alleviating the pains of those unfortunate fellows who are injured. I have no doubt that many persons' sufferings are intensified and prolonged, and most probably some die, from not having proper treatment immediately upon receiving the injuries. The prevailing custom when a man is injured is to remove him home at once and send for a surgeon. No examination is made of the nature of his injury. A vein or artery may be cut, but it is not discovered until the surgeon arrives, and perhaps when it is too late to save the unfortunate person's life. A limb may be broken, and the broken ends of the bones are left to pierce the flesh at every step while he is being conveyed home. To many poor fellows with broken limbs, their shifting in and out of cars, incident to their removal home, has been a severe ordeal, intensely painful. The miners generally are willing and ready to make any sacrifice for the comforts of injured comrades, and endeavor to handle them with

care and tenderness; but they do not know anything concerning the best manner of treating the injuries of the person so as to aid his recovery and relieve his sufferings during removal.

I think if the physicians of mining districts could be induced to take interest in this humane question, and give free lectures to the people connected with coal mines, instructing them in the best manner of treating injured persons prior to the arrival of a surgeon, they would contribute greatly to allay the torturing pains of the unfortunate fellow-beings who are the victims of mine accidents.

The late Peter Shepherd, M. B., who was killed at Isandula January 22, 1879, whilst endeavoring to save a wounded soldier, prepared a concise little book of instructions on "Aids for First Help to the Injured;" and it is published by the St. John Ambulance Association of London; and also a pocket aide-memoire, from which the following is taken, being applicable to the cases of injury frequently met with in mines:

Wounds—Bleeding from Arteries.

Head—Pad and bandage the wound.

Neck.—Place thumb in wound and press backwards against spine.

Arm-pit.—Press thumb into wound, second person to press main artery behind middle of collar-bone.

Upper and fore-arm.—Press with fingers, or apply tourniquet to inside of upper arm. When below elbow, place pad in hollow of bend of elbow, and bend fore-arm against upper arm.

Palm of hand.—Bandage hand closed over a piece of stick, or press arteries at front of wrist.

Thigh.—Hand pressure at center of fold of groin, or by tourniquet on inside of thigh.

Ham, or back of knee-joint.—Same as for thigh, or press by hand or tourniquet in ham above wound.

Front or back of leg.—Press by hand or tourniquet at back of knee-joint, or double the leg up against a pad placed in the ham.

Instep.—Pressure to the middle of front of ankle.

Sole of foot.—Bandage with pads behind ankle bones and middle of instep.

A tourniquet can be made by placing a stone over the main artery, tying a handkerchief loosely over it, and then twisting it tight with a stick.

Blood from an artery is bright red, and flows in jets.

Blood from a vein is dark bluish, and flows slowly.

The flow in arteries is from heart to head, hands and feet.

The flow in veins is just the reverse.

Bleeding from veins (for all situations).—Elevate the part and apply pad and bandage.

Flesh wounds.—Wash, stop bleeding, fix parts in natural position without delay.

Bruised wounds.—Wash, apply wet cloths; if about head, poultices.

Broken Bones.

Lower jaw.—Bandage the lower to upper jaw with handkerchief.

Collar-bone.—Place pad in arm-pit, bandage elbow to side, sling fore-arm.

Ribs.—Apply bandage six inches wide, eight yards long, round chest.

Upper arm.—Apply roller bandage to hand and fore-arm, splints to back and front, sling fore-arm.

Fore-arm.—Apply padded splints to back and front, from hand to elbow, holding the arm extended with thumb pointing upwards.

Hand.—Apply splint bandage, and support in sling.

Thigh.—Apply a long splint from armpit to outside of heel, and a short one from back to knee on inside, and bandage.

Leg.—Apply splints inside and outside, and bandage.

Signs of broken bones.—Motion at the part; crackling sensation on moving the broken ends; alteration in shape; often shortening. Always apply splints before lifting or carrying. Dangers are of pushing the ends through flesh, blood-vessels, nerves, or internal organs (lungs.) Splints may be formed of soldiers' weapons—rifles, swords, and scabbards—umbrellas, walking-sticks, broom-handles, drills, folded papers, &c.; bandages from handkerchiefs, sheets, and shirts.

Esmarch's Triangular Bandage.

This bandage is a triangular piece of unbleached calico; the lower border measures four feet, and the two side borders two feet ten inches each. It can be applied in thirty-two different ways; it answers every purpose for temporary dressings; and the means of making one are always at hand, namely: a pocket-handkerchief cut diagonally in two. Its application is so easy that a look at the accompanying diagram will enable any one to use it in the manner indicated in the illustrations.



REPORTS
OF THE
MINE INSPECTORS
OF THE
BITUMINOUS COAL FIELDS.

BITUMINOUS COAL DISTRICTS.

The following are the counties, or parts thereof, comprising the respective mining districts of the bituminous coal fields of the State, arranged in accordance to the law by the board of examiners.

The following are the names of the board of examiners: William A. Edeburn, J. Sutton Wall, John Ditchman, John Mitchell, and John Hellwig.

The boundaries of the several districts, with the names and addresses of the mine inspectors, are as follows:

FIRST DISTRICT.

THAT PART OF ALLEGHENY AND BEAVER COUNTIES LYING SOUTH AND WEST OF THE OHIO, MONONGAHELA, AND YOUGHIOGHENY RIVERS, AND THAT PART OF WESTMORELAND LYING BETWEEN THE MONONGAHELA AND YOUGHIOGHENY RIVERS, AND THE COUNTIES OF GREENE AND WASHINGTON.

JAMES LOUTTIT, Inspector,
Monongahela City, Washington county.

SECOND DISTRICT.

THAT PART OF THE COUNTY OF ALLEGHENY LYING EAST OF THE ALLEGHENY, MONONGAHELA, AND YOUGHIOGHENY RIVERS, AND ALL THAT PART OF THE COUNTY OF WESTMORELAND LYING EAST OF THE YOUGHIOGHENY RIVER.

JOHN J. DAVIS, Inspector,
662 Fifth avenue, Pittsburgh.

THIRD DISTRICT.

THAT PART OF BEAVER COUNTY LYING NORTH OF THE OHIO RIVER, AND THE
COUNTIES OF BUTLER, CAMERON, CLARION, CRAWFORD, ELK, ERIE,
FOREST, JEFFERSON, LAWRENCE, MCKEAN, MERCER,
VENANGO, AND WARREN.

THOMAS K. ADAMS, Inspector.
Wheeler P. O., Mercer county.

FOURTH DISTRICT.

THE COUNTIES OF BLAIR, BRADFORD, CENTRE, CLINTON, HUNTINGDON, LYCOM-
ING, SULLIVAN, POTTER, AND TIoga.

ROGER HAMPSON, Inspector,
Towanda, Bradford county.

FIFTH DISTRICT.

THE COUNTIES OF BEDFORD, FAYETTE, AND SOMERSET.

AUGUSTUS STINNER, Inspector,
Connellsville, Fayette county.

SIXTH DISTRICT.

THAT PART OF ALLEGHENY COUNTY LYING NORTH OF THE OHIO AND ALLE-
GHENY RIVERS, AND THE COUNTIES OF ARMSTRONG, CAMBRIA,
CLEARFIELD, AND INDIANA.

JOHN M. WATT, Inspector,
Tarentum, Allegheny county.

INSPECTOR

ALLEGHENY

WESTMORELAND
COUNTY

F. A. J. E. T. T. L. 12.

W E S T I R G I N A

LETTER OF TRANSMITTAL.

FIRST DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I have the honor herewith to submit my annual report as inspector of mines for the first bituminous coal district of Pennsylvania, for the year ending October 31, 1883, which is the seventh annual report for this district since the enactment of the ventilation law. The report will only cover ten months of last year.

Since my last report two additional inspectors have been appointed, and the districts have been redistricted to conform with the amendments to the ventilation act, consequently the first district has been changed from one hundred and eighty-nine mines to one hundred and six.

This report contains a copy of the amendments to the mine ventilation act of April 18, 1877; a short description of the mines in the district; a list of the mining casualties; the actual aggregate production of ninety-three mines for the year; the estimated aggregate production for the whole district, based on the mines reported, and a comparison of the number of persons killed to the estimated amount of coal mined.

Yours very respectfully,

JAMES LOUTTIT,
Inspector.

MONONGAHELA CITY, PA., *January 4, 1884.*

TABLE

Showing coal production, &c., in the First Bituminous Coal District of Pennsylvania for the year ending October 31, 1883:

Actual amount of coal production from ninety-three mines, as reported in tons,	6,575,881
Estimated production of the whole district, or one hundred and six mines, in tons, based upon the actual production, . . .	7,495,085
Estimated number of persons employed in the mines, . . .	9,274
Estimated number of persons employed outside,	1,484
Estimated total number employed about the mines,	10,758
Total number of casualties about the mines,	50
Number of lives lost in and about the mines,	17

Number of non-fatal casualties,	33
Number of deaths from falls of roof and slate,	14
Number of deaths from wagons,	3
Number of widows caused by the above-mentioned deaths,	3
Number of orphans caused by the above-mentioned deaths,	4
Amount of coal produced per life lost, in tons,	440,887 $\frac{6}{27}$
Number of persons employed per each casualty,	185 $\frac{12}{5}$
Amount of coal produced per each non-fatal accident,	<u>227,123</u>

With reference to the subject of miners' hospitals, which is so frequently being brought to my attention in many different ways, I would heartily recommend that a hospital for the miners of the bituminous region of this State be established at some point in the Pittsburgh district, which would be within easy reach of over three hundred mines now in active operation. These may be in one sense called "charitable institutions," but in this case they happen to be of that kind which brings to the State rich returns in a material form. The State cannot perform a more consistent service to a large number of its most industrious citizens than that of lending some small aid like this to those men working in the mines who suffer unavoidable injury, and thereby relieve to an appreciable extent the burden of nursing and care of families that must, in many cases, depend upon the charity of their neighbors for the means of subsistence until after the recovery of the miner. The facilities usually found in the homes of miners, where everybody must work to live at all, are not always sufficient for even the ordinary care and comfort which a sick or injured person should have. While we are sensible of the annual decrease in number of serious accidents to life and limb, we cannot hope for entire freedom from the serious results of mining for years to come if ever; and anything that will relieve the consequences of accidents and encourage the material advancement of this important branch of industry, is certainly proper matter for legislation. The same reasons that have been argued for the establishing of hospitals for the miners in other portions of the State, are equally applicable to this region; and I hope to see the matter favorably considered at the next session of our Legislature.

CIRCULAR LETTER

To the Owners, Operators, Agents, and Mining-bosses of the Bituminous and Semi-Bituminous Coal Mines of Pennsylvania:

August, 1883.

GENTLEMEN: The inspection districts for the bituminous and semi-bituminous coal regions of this State, as formed by the examining board in special session of August, 1883, in pursuance of the provisions of the ventilation act of April 18, 1877, and the amendment thereto of June 13, 1883, comprise as follows:

First District

Comprises the counties of Washington and Greene, and that part of Allegheny county lying south and west of the rivers Ohio, Monongahela, and Youghiogheny, and part of Westmoreland lying between the rivers Youghiogheny and Monongahela.

Your attention is hereby specially called to the following extracts from the amendment to the ventilation act of June 13, 1883, to wit:

“In order to better secure the proper ventilation of every coal mine and promote the health and safety of the persons employed therein, the owner or agent shall employ a competent and practical inside overseer, to be called mining-boss, who shall keep a careful watch over the ventilating apparatus, the air-ways, traveling-ways, pumps, and pump-timber and drainage, and shall see that, as the miners advance their excavations, all loose coal, slate, and rock overhead are carefully secured against falling in or upon the traveling-ways, and that sufficient timber is furnished, of suitable lengths and sizes, for the places where they are to be used, and placed in the working places of the miners; and it shall also be the duty of the mining-boss to see to it that proper cut-throughs are made at least every thirty yards in the room-pillars of the miners' places, and that on all traveling-roads holes for shelter, of sufficient size, to be made at least every thirty yards, and be kept whitewashed.

“And the mining-boss shall measure the air-current at least once a week at the inlet and outlet, and at or near the face of the heading, and keep a record of such measurements, and report the same to the inspector of his district once in every month; and it shall be the further duty of the mining-boss to immediately notify the agent or owner of the mine of his inability to comply with the provisions of this section. It shall then become the duty of said agent or owner at once to attend to the matter complained of by the mining-boss, and have the matter at once come within the provisions of this section. The safety-lamps used for examining mines, or which may be used in working therein, shall be furnished by and be the property of the owner of said mines, and shall be in the charge of the agent of such mine. And in all mines generating explosives gases, the doors used in assisting or directing the ventilation of the mine shall be so hung and adjusted that they will close themselves, or be supplied with springs or pulleys so that they cannot be left standing open; and bore-holes shall be kept not less than twelve feet in advance of the face of every working place, and, when necessary, on the sides, if the same is driven towards and in dangerous proximity to an abandoned mine, or part of a mine, suspected of containing inflammable gases, or which is inundated with water.

“All owners or operators of bituminous coal mines or collieries shall keep posted, in a conspicuous place about their mines or collieries, written or printed rules defining the duties of all persons employed in or about mines or collieries.

“SECTION 12. * * * * * The owners or operators shall have

surveyed, by a competent mining engineer, all extensions of working places and air-courses, with the directions of the air-currents, and accurately placed on the map or plan of said mine or colliery, at least every six months, said map or plan to be kept at the mine or colliery for inspection by the inspectors."

It is important that the monthly reports of each mine should be made up and forwarded to the inspector of the district during the second week of each month, so that the inspectors can make up and forward their monthly reports to the Secretary of Internal Affairs promptly at the time required by law.

MINES ON THE MONONGAHELA RIVER.

Knob Mines.

This mine is situated about one mile above West Brownsville, and is reached by a slope. It is owned and operated by the Knob Coal Company. Ventilated by a furnace and exhaust steam. Ventilation here has been very satisfactory. The company have made very extensive improvements the last year at this mine, consisting of driving a stone drift, building abutments, &c.

Umpire Mines.

This mine is located on the east side of the river, and is operated by Snowden, Graham & Co. This is a drift opening, and the coal is hauled out by mule power. It is well situated for ventilation, their cross-headings being driven through the hill, coming out on the Big Redstone creek. Machinery should have been supplied here for the hauling of the coal years ago, but like many of the old mines the front coal has been all taken out, and no coal being left to support the main heading, which is very crooked, making the use of machinery very difficult to adopt.

Globe Mines.

This mine is located on the east side of the river. Owned and operated by Crothers, Musgrave & Co. They have worked very little this year. The mine is in good order. The owners say that they can buy coal cheaper than they can load it at their own mines.

Eclipse Mines.

This mine is situated on the west side of the river. J. S. Neel, operator. They employ a large force of hands. The ventilation is good.

Caledonia Mines.

This mine is owned by William Thomas, and operated by T. J. Woods & Co. This mine has been much improved. They have built a new tippie, put a new road in the mine, retimbered main entry, building heavy cribbing on the sides of the same. The one I saw was built of brick and mortar; size of crib was fifteen and half feet long, three feet wide, and six and one half feet deep. They have also put in a new furnace of the following di-

mensions: Seven feet high, six and two thirds feet wide, and twenty-five feet long. This furnace is located at the bottom of a shaft seventy-nine feet deep, with a stack of thirty-five feet; it has a capacity of about twenty thousand cubic feet of air. George Collins, mine-boss.

Champion Mines

Operated by Morgan & Dixon. This mine is in very good order.

Wood's Run Mines

Is owned by William Thomas, and operated by Gregg & Co. This mine is in fair order.

Courtney Mines

Is located at Courtney station, on the Monongahela division of the Pennsylvania railroad, and operated by the Courtney Coal Company. These mines are always found in good order. The coal is shipped by rail. John McGonegal, superintendent.

Garfield Mines.

This mine is worked on the double-entry system. The company put in a large furnace, which keeps the mines in good sanitary condition. J. S. Neel, operator.

Garrow Mine.

Garrow mine is situated on the east of the river; Joseph Garrow, operator. This mine being partly under the river, the furnace was drowned out by a freshet, leaving the mine in a bad shape. Mr. Garrow told me that he would sink a new shaft on higher ground, and build a new furnace, and would not be found in that condition again.

Cedar Hill Mine

Is also on the east side of the river, owned and operated by Morgan & Dixon. This mine is in good order.

Little Alps Mines,

Nos. 1 and 2, are about worked out, and will not last a great while.

Neel's Mine.

This mine is on the west side of the river, and is owned and operated by J. S. Neel, and has been worked very little this year. There is not much coal to work out in this mine.

American Mine

Is owned and operated by F. H. Coursin. This mine is in very good order. Ventilation in fair condition. The inside of the mine is in charge of Benjamin Ferrady.

Clipper Mines

Are owned and operated by the Clipper Coal Company. They have been run very little this year. The company had to build a new road, owing to the old one being in the way of the road-bed of the P. V. & C. R. R. They will run their coal road into the old works, so that they will have their mines opened sooner than if they had started in a new field.

Snow Hill Mine

Is operated by the Alps Coal Company. This mine is a new one. Of late the company have had some trouble with a bad roof in the mine. Mr. James Underwood, superintendent, has overcome it now.

Troy Mine.

This is a small mine, operated by Giles & Co. The coal is almost worked out.

Bargeddie Mine

Is located on the east side of the river, and is operated by James Harris & Co. They have built a small furnace, which I think will ventilate the mine.

Turnbull & Hall.

This mine is a very old one, and at the time of my visit was in good order.

Carondelet Mine.

This is a good mine, and is kept in good order. They have some gas to contend with, but having a strong current of air it is kept harmless. This mine is operated by Frazer & Fry.

Little Redstone

Is situated on the east side of the river; James Rutherford, operator. This is a small mine and in a bad condition as regards ventilation and drainage.

Smertz Mine.

This is a small mine; Smertz & Co., operators. The coal of this mine is consumed by the company's glass house.

Stockdale Mine

Is situated on the west side of the river; owned and operated by Tomer & McKinley. This mine was in good working condition at the time of my visit. There were nine thousand cubic feet of air traveling at the outlet. Mine boss, Robert Scott.

Abe Hays.

This mine is in good order, but has not run very steadily this year. Robert McMasters, mine boss.

Black Diamond.

This mine has not been worked for over a year, but at the present writing they are building a new tippie, which I think will be one of the best on the river. W. H. Brown's Sons, operators.

Catsburgh.

This mine is in fair condition, and is a large mine, worked on the single-entry system. They are troubled with swamps, making the working of the coal difficult.

New Eagle.

This mine is not in as good condition as it ought to be.

Cincinnati Mines.

Mr. J. S. Neel, lessee of this mine, has made extensive improvements during the year past, and at the present writing the work is not completed. They have a new air-shaft to sink at the back of the workings.

Buffalo Mines

Is owned and operated by J. J. Steytler. The coal from this mine is shipped by rail over the Monongahela division of the Pennsylvania railroad. The company has sunk a shaft at the back part of their workings, about a mile and a half from the pit mouth; this shaft is eight by eight, the air is taken down the shaft and around the workings in one continuous current, the ventilation being produced by a six-foot Murphy fan, working on the exhaust principle. George Lockhart, superintendent; James Furlong, mine-boss.

Allequippa, Camden, and J. C. Risher mines are all in good order and do not need any description.

Stoner's Mines,

Operated by William Stoner's heirs. This mine has been much improved during the summer, they have started some double-entries, built a new furnace, and put in a locomotive to haul out the coal. These improvements were much needed.

Faucett Mines,

Located at Green Springs, and operated by Thomas Faucett. At the time of my visit I found the mines in good order.

Joseph Walton & Co.

Lower mines has been improved this year by building a new tipple and overhauling the inside generally.

Banner Mines.

Gamble & Risher, operators. This mine is always in good order. They ship coal by river and rail from these mines.

Cliff Mines.

This mine is in good order, but has not been worked very much this year.

Munhall Mines,

Located at Munhall station, and is operated by the Munhall Brothers. These mines are in good order.

Street's Run Mines

Is operated by I. D. Risher. This mine is in fair working condition.

Hay's Mines.

Only one of their mines has been worked this year, and was not in very good condition when visited.

Jones & Laughlin's Mines.

This mine is in good condition.

Ivil Mine

Is owned and operated by James Jones. This mine is not in a very good condition, the front of it having been worked out, making it very difficult to ventilate. Steam power is used for hauling coal and pumping water from the mines. Bernard Callahan, mine-boss.

Coal Bluff Mine.

This mine is operated and owned by the Monongahela and Peters' Gas Coal Company. Very extensive improvements have been made at these mines, consisting of tipples for river and railroad loading, timbering pit mouth, sinking an air-shaft, and laying new T iron road through the mine. Thomas Briggs, mine-boss.

O'Neil's Mines.

Joseph Walton & Co., upper and lower roads, are in reasonable good order.

Fulton Mine

Is owned and operated by George Jones & Co. This mine has not been worked very strong the last year. Ventilation is produced by furnace power.

MINES ON THE CHARTIERS VALLEY RAILROAD.**Gregg Mine.**

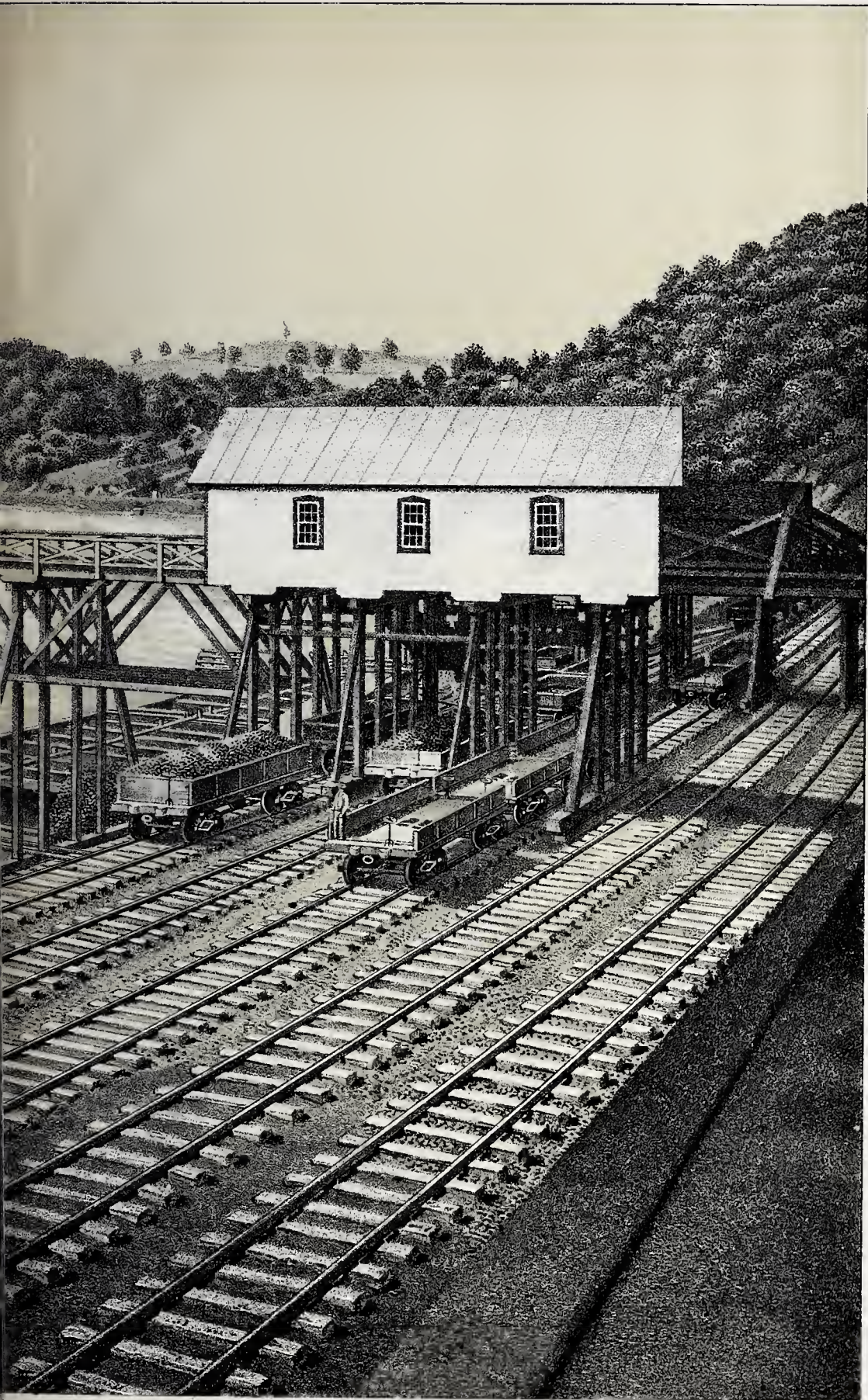
This mine is located near the borough of Mansfield. This is a small mine, and is nearly worked out. The air, at the time of my visit, was very good, but the drainage was poor. They had about thirty-seven men and four boys working at the time of my visit. Owned and operated by the Gregg Bros.

Nixon Mine.

This mine is owned and operated by the Chartiers Valley Coal Company. This mine, at the time of my visit, was in good order.



TIPLE HOUSE & SIDINGS OF



COAL BLUFF COAL MINES

Glass House Mine.

The air in this mine was good, but the drainage was bad. The coal has been worked out to the limestone, leaving no room for drains alongside of the roads. A new steam pump has been put in this year, but for some cause or other the water does not reach it, so the mine has not been benefited thereby.

Summer Hill.

These mines are operated by Frank Armstrong. They were not in as good condition at the time of my visit, as I would have liked to have seen them; the reason given for this was, they were working out some old entries and had to carry the air out of its natural course to ventilate them. There is a very bad roof in this mine, and the slate in some places is as much as seven feet thick.

Bower Hill Mines.

Operated by A. J. Schultze. These mines have been re-opened and put in No. 1 order. They have driven a new main entry, built a new tippie, and new sidings have been laid, etc.

Slope Mine

Is located at Hasting's Station, and operated by W. J. Morgan. This mine is not what I would like it to be; the drainage is very bad. They have a good furnace, but the air is not conducted through the mine properly.

Cook's Mine

Is located at Cannonsburg. This is a small mine, but in good order.

Shupe & Co.

Mines is also located at Cannonsburg. At my last visit they were in trouble with the old works they had to go through, a creep having come on. They were cribbing and posting. I think they will soon have it all right. Shupe & Co., operators

Allison Mines

Is located at Allison's Station. The company has opened up in a new hill. I found the mines in a fair condition.

The Harding Shaft.

Legler's & Anderson's mines has not done very much work this year owing the change of gauge and ownership of the P. S. R. R. to the B. & O.

MINES ON THE P. C. & ST. LOUIS RAILROAD.**Idlewood Mines.**

These mines are located at Idlewood station. This is a small one, employing about forty-five miners, and was in a bad condition in regard to air and drainage at the time of my visit, September 12. I found eight men

in one entry working ahead of the air. I told the mine-boss to remove those men, which he promised to do immediately.

Mansfield Mines Nos. 1 and 2.

These mines are located in North Mansfield. In one of them the entry pillars are being brought back, which will finish it. The other one I found in fair condition, except one entry, and at the head of that one the company was making ready to sink a shaft, which will make the mines in good order.

Grant Mines

Operated by the Grant Coal Company. This mine is in very good condition for ventilation and drainage. The underground workings are in charge of T. B. Stone.

Laurel Hill Mine.

This mine is in very good order. The coal is mined by machinery.

Camp Hill

Is operated by David Steen & Son. This mine is not in very good condition, the drainage being very bad. The operators have spent large sums of money to dry the mines, but failed.

Fort Pitt.

This mine is owned and operated by the Fort Pitt Coal Company. It is in reasonable condition.

McConnell Mine.

This is a small mine, and considerable improvement has been done here. A new tippie and incline being put up, and quite an extensive drain is being cut to dry the mines. Harry O. Lett, mining-boss.

Willow Grove Mine

Is operated by T. B. Robbins. On my last visit to this mine, (on September 24,) I found this mine in very good order. Samuel McDougal, mining-boss.

National Mines

Are operated by the National Coal Company. They are in very good order.

Midway Mines.

G. W. Crawford, operator. This mine is in good order. They have put up a new furnace on the north side of the mines, which produces large quantities of pure air.

Oak Ridge Mine

Is operated by the Oak Ridge Coal Company. It is in good working condition.

Cherry Mines.

Morris McCue, operator. The ventilation in this mine is very good, but drainage is imperfect, and the roads are in bad condition.

PLAN

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100% Male



Gaddis Tract

Henshaw Tract.

Primrose Mine

Is operated by the Robbins Block Coal Company, and is in very good order. A stationary engine has been put in to haul the coal out.

Keystone Mines

Arc operated by the Keystone Coal Company. It has been worked but little during the last year.

CASTLE SHANNON AND SAW-MILL RUN MINES.**Keeling's Mines,**

Operated by the Birmingham Coal Company, was, at my last visit, in better condition than ever before. They have adopted the double-entry system, and have sunk a shaft; also moved their ventilating apparatus further back in the hill.

Castle Shannon Mines

Is in good working order.

Fox Mines.

This mine is not in very good order; it was flooded in the spring, and they lost some of their air-courses, and had not yet got in proper shape at my visit. The coal from this mine is hauled away by teams. The miners work by measure. I visited this mine three times for the purpose of branding the cars, but the miners entered into contract to work as they had been before—a copy of which will accompany this report. Hugh McMurray, mine-boss.

The mines in Saw-Mill Run are four in number. The Carbon mines are almost worked out, and in very fair working condition. The *Gray & Bell* mines are in very good order. *Enterprise* mines are very large, and in very good condition. A shaft will be sunk this fall at the back part of the same.

Montour and Beech Cliff Mines

Are owned and operated by the Imperial Coal Company, and both are in good order.

Trotter Shaft.

This shaft is always found in good order. At the time of my first visit to this shaft I spoke to the mine-boss (Mr. Parker) about changing the action of the ventilating fan from an exhaust to a forcing fan. Some time afterwards I received a letter from him saying that he had moved the fan to the downcast shaft, making the fan a forcing instead of an exhaust, as heretofore, and that it was doing splendid, and that it run the ventilation up from thirteen to twenty-seven thousand cubic feet.

Leisenring Shafts Nos. 1 and 2.

These shafts are the deepest in the coke regions, and are also the most

extensive mines in Western Pennsylvania. Diagrams of some of their workings will accompany this report.

H. C. Frick & Co.'s Mines

Are all in good order generally. This company has spent a great deal of money in building new ventilating furnaces at some of their mines; a plan of one of them will be seen in this report. Thomas Lynch, superintendent; R. B. Howell, C. & M. E.

NEW MINES.

Star Coal Mine,

Owned and operated by F. Mankedick, is located on the Pan Handle road, immediately below Noblestown. Thirty-eight miners are employed. This is a very good mine, but contains only a small area of coal.

Painter's Run Mine

Operated by Sandford & Co., is laid out on the double-entry system, but not far enough advanced for a lengthy report.

There is another mine opened on this run (*Painter's*) by the Beadling Brothers.

On Tom's run, which is connected by the same railroad, there are five or six new mines opened up, but not far enough for a general description.

Mansfield Mine,

No. 2, owned and operated by the Mansfield Coal and Coke Company, is a large mine, employing one hundred and fifteen miners, (men,) twelve boys, and fifteen other persons, seven inside and eight outside. A furnace will be put in here for ventilation. Robert Bell, superintendent.

The Mines

In Bedford county, on my visit, (April 4,) there were only two mines working, on Six-Mile run. The one situated at Riddlesburg was working sixty-five men. These mines are ventilated by furnace power. They are in good order. The coal is principally made into coke and consumed by the furnaces at Riddlesburg.

The next mine is owned by Robert Brown. This is a new drift opening. This firm drove seven hundred feet in the solid rock before striking coal. The coal in this county lays at an angle of 20° to 25° .

There is one shaft on this run that is one hundred and fourteen feet deep. The second opening is made by a slope. They are operated by R. B. Wigton.

There are two drift openings on Sandy run, and are connected under ground. The air-current at the inlet measured ten thousand cubic feet. There is little or no work going on in Bedford county.

VENTILATING FURNACE
FOR SHAFT MINES COOL-BRICK COKE CO.



FATAL ACCIDENTS.

January 13, 1883. ROSS F. MATHOCK was killed in the Youngstown mine. He was drawing a pillar which needed posting. He thought that he would load another car before setting the posts, and went under the roof for some purpose, when it fell, killing him instantly.

January 27. JACOB WETZEL, a miner, was killed at the Jimtown mines, by a fall of slate, in No. 5 room of No. 4 entry. He had not been working for some time, but that day he went in to assist his father and brother, who were drawing entry pillars. His age was seventeen years.

February 1. JOHN SHAFER was killed by empty coal cars running over him at the mouth of the Morrell slope, which is operated by the Cambria Iron Company, Johnstown.

February 19. FREDERICK CRAVIN had his leg so badly injured by a fall of slate in the Ivil mines, operated by James Jones, that amputation was necessary, but he did not survive the operation. He was aged seventy-seven years.

February 22. JAMES FIMPLE was killed at the Snow Hill mines, operated by the Alps Coal Company. He was assisting the pit boss to set timbers at the mouth of a room on No. 1 entry, when a mass of rock fell and killed him instantly. His age was twenty-six years.

March 30. MICHAEL LEE was killed by a fall of slate in Courtney mines, operated by the Courtney Coal Company. He was working with his brother in room No. 6 on entry No. 4. They had a bearing-in made, five feet deep and twenty feet long. He was drilling a hole in the coal, when it fell on him, with the above-mentioned result. He was aged seventeen years.

May 2. JACOB BILLET was killed by a fall of slate in room 41 of entry No. 3 in Street's Run mines, operated by J. D. Risher. He was a stone mason by trade, and not a practical miner. He leaves a wife and four children.

April 10. HENRY GARSIDE was killed by a fall of slate in No. 1 room of entry No. 3 in the Snow Hill mines, operated by the Alps Coal Company. He was aged fifty-one years and unmarried.

May 21. GEORGE THOMAS was killed by being caught between the coal cars and coal rib, in Leith shaft, at mouth of room No. 38 on No. 1 butt-heading, while assisting Hugh Lee to haul a trip out with one mule. They were coming down the entry, and Thomas would not allow Lee to put in sprags enough to hold the cars in check, and they left the track and crushed Thomas to death, as above stated.

May 5. JOHN BARNES was killed in Rock Run mines by a fall of slate.

May 29. REUBEN FEREBY, a boy, was killed by a fall of slate while assisting his guardian, W. H. Ramsey, in No. 85 pillar of the Chambers entry, in the Allequippa mines.

June 26. GEORGE HUNTER was killed by a fall of slate in room fifty-four of entry five, in the Laurel Hill mines, operated by W. P. Rend & Co. The piece of slate that killed him measured seven and three quarter feet long,

five and one half feet wide, and ten inches in thickness. He leaves a wife and one child.

June 28. JAMES PERNISH was killed by a fall of slate in the Beech Cliff mines operated by the Imperial Coal Company.

July 20. W. P. VANCE was fatally injured by a fall of slate in Walton's lower mine. He was mining a pillar and in the act of removing the last post when the slate fell and injured him so badly that he died on the following day. He was an acting justice of the peace and highly respected by his neighbors.

September 26. JAMES CUMMINGS was killed in the Summer Hill mines by being caught between the entry-rib and coal ears of a passing trip. At the point where he was killed there was not room for the cars to pass him safely on that side of the entry, but just on the opposite side there is a break-through which would have afforded him safe standing room had he choose to occupy it, and why he did not do so is unknown. He was aged thirty years and unmarried.

October 15. AUGUST HUFFERMAN was fatally injured by a fall of horseback in the Essen mine. He died on the third day after the accident. He was aged twenty-eight years and unmarried.

October 19. MAGUS PETERSON, a boy, was killed in room twenty-four of entry No. 5 of the Jefferson mines, by a fall of horseback. This boy was considered by the pit-boss as not able to take care of himself in the mine, had been discharged a few days before the accident occurred, but had re-entered the mines and was working with another man without permission from the pit-boss. He was aged eighteen years.

NON-FATAL ACCIDENTS.

MARTIN GALLAGHER, January 23, received a flesh wound in Greenfield mines.

HENRY DEVLIN, February 7, collar-bone broken in Montour mines.

February 23 there were two persons, whose names are unknown, injured by fall of horseback.

GEORGE TAYLOR, March 22, had his leg broken by a fall of coal in mine at Riddlesburg.

JAMES WEISEL, March 20, three ribs broken in Leisenring shaft No. 1.

J. H. FIELDS, March 8, injured by falling coal in Tremont mines.

THOMAS HUGHES, March 27, legs bruised by coal ears.

HOWELL EVANS, March 1, slightly hurt by slate in Amity mines.

DAVID LLOYD, March 27, slightly injured by slate in Amity mines.

PETER FINNAGAN, June 18, burnt by explosive gas in Morrell slope.

ALBION WEIGLE, June 25, injured slightly by a fall of coal roof in I. D. Risher's mines.

JOHN CROSS, July 2, leg broken in Youngstown mines.

PETER GALLAGHER, July 16, leg caught between loaded cars in Wheeler slope.

JAMES JENKINS, August 21, injured by falling slate in Courtney mines.

ROBERT CRAIG, August —, leg broken by falling slate in Garfield mines.

JOHN MULLIGAN, September 15, shoulder knocked out from the jar of a shot in the next room to where he worked. This accident happened in Ivil mines.

JOHN T. BATH, July 25, slightly hurt by falling coal in Umpire mines.

HENRY B. GIBSON, a driver, employed by the Abe Hays Coal Company, received a fractured leg by falling roof, while passing with his trip on the main entry. This accident happened April 28.

MICHAEL COLLINS, March 24, leg crushed by falling slate in Caledonia mines.

ROBERT STOCKDALE, March 30, back injured by falling slate in Caledonia mines.

GAD THOMAS, March 26, seriously injured by coal cars in O'Neil's mines.

PETER DEXSAM, April 21, rib broken by a post falling on him in Amity mines.

GREEN FEDERSE, SAM CRAIG, and JAMES GLADSEN, burnt by explosive gas in Carondelet mines. This accident happened March 23.

JOHN RODGERS, May 14, hand crushed by ears in Street's Run mines.

JOHN CHRISTY, May 23, crushed by wagons in Leith colliery.

THOMAS RICHARDS, June 16, hurt slightly on back in J. C. Risher's mine.

THOMAS PIPPENS, June 26, hurt in Clipper mines.

JAMES SALONE, June 28, hurt slightly in Glendale mines.

A man by the name of TAYLOR had his leg broken in Rock Run mines, May 16.

ABE GUNDEE, burnt by explosive gas in the Slope mines, Hastings station, C. V. R. R.

PAT MALONEY, March 27, injured by falling coal in Banner mines.

COMMONWEALTH OF PENNSYLVANIA, } ss:
Allegheny County, }

An inquisition indented, taken at borough of Homestead, in the county of Allegheny, on the 2d day of May, A. D. 1883, before me, Peter Dressler, coroner of the county aforesaid, upon the view of the body of Jacob Billet, then and there lying dead, upon the oaths and solemn affirmations of M. C. Andress, Robert Baxter, Edward West, Arthur Izenour, H. T. Healy, Florence M. Hall, good and lawful men of the county aforesaid, who being sworn and affirmed, and charged to inquire, on the part of the Commonwealth, when, where, and how, and after what manner the said Jacob Billet came to his death, do say, upon their oaths and affirmations aforesaid, that the said Jacob Billet, thirty-eight years of age, came to his death about eleven o'clock on the morning of May 2, A. D. 1883, at J. D. Risher's coal-pit, in Mifflin township, Allegheny county, Pennsylvania, by a lot of slate falling on him while at work in his room; and from all the evidenee taken we find that it was accidental; and so the jurors aforesaid, upon their oaths

or affirmations, as aforesaid, say that the aforesaid Jacob Billet, for the cause aforesaid, in manner and form aforesaid, came to his death, and not otherwise.

In witness whereof, as well of the aforesaid coroner, we, the jurors, have hereunto put our hands and seals on the day and year, and at the place above mentioned.

PETER DRESSLER,
Coroner.

M. C. ANDRESS. [SEAL.]

ARTHUR IZENOUR. [SEAL.]

ROBT. BAXTER. [SEAL.]

H. T. HEALY. [SEAL.]

EDWARD WEST. [SEAL.]

FLORENCE M. HALL. [SEAL.]

COMMONWEALTH OF PENNSYLVANIA, }
Allegheny County, } ss.

An inquisition indented, taken at Mifflin township, Pennsylvania, in the county of Allegheny, on the 5th day of May, A. D. 1883, before me, Peter Dressler, coroner of the county aforesaid, upon the view of the body of John Burns, then and there lying dead, upon the oaths and solemn affirmations of Thomas Gilmore, Henry Huffstickler, Wm. Harrison, Stephen Gould, Jonathan Gould, Florence M. Hall, good and lawful men of the county aforesaid, who being sworn and affirmed, and charged to inquire, on the part of the Commonwealth, when, where, and how, and after what manner the said John Burns came to his death, do say, upon their oaths and affirmations aforesaid, that the said John Burns, between thirty and thirty-four years of age, came to his death on the morning of May 5, A. D. 1883, at W. J. Snodgrass' coal pit, in Mifflin township, by a lot of horse-back falling on him, and from all the evidence we, the jury, find that it was accidental. And so the jurors aforesaid, upon their oaths or affirmations, as aforesaid, say that the aforesaid John Burns, for the cause aforesaid, and in manner and form aforesaid, came to his death, and not otherwise.

In witness whereof, as well of the aforesaid coroner, we, the jurors, have hereunto put our hands and seals on the day and year, and at the place above mentioned.

PETER DRESSLER,
Coroner.

THOS. GILMORE. [SEAL.]

STEPHEN GOULD. [SEAL.]

HENRY HUFFSTICKLER. [SEAL.]

JONATHAN GOULD. [SEAL.]

WM. HARRISON. [SEAL.]

FLORENCE M. HALL. [SEAL.]

UNIONTOWN, FAYETTE COUNTY, *January 13, 1883.*

This is to certify that I was duly notified by Mr. Kerghley, Superintendent of the Youngstown Coke Company, (Lim.) to appear and hold an inquest on the dead body of Ross F. Matlick, who was killed in their mine. As there was a misunderstanding in the time of the trains, I did not arrive until the body was on the way to West Virginia. I examined the place of

the accident in the mine, and from what I could see and learn from some practical miners, the accident was due to his own carelessness in not keeping the roof sufficiently propped. He had some nineteen extra posts at hand had he taken time to put them up.

JOHN D. STURGEON,
Coroner.

STATE OF PENNSYLVANIA, } ss:
Fayette county.

An inquisition indented and taken at Jimtown, in the county of Fayette, this 27th day of January, A. D. 1883, before me, J. K. McDonald, a justice of the peace in and for said county upon view of the dead body of Jacob Hetzell, then and there lying dead, upon the oaths of B. F. Oglevee, J. H. Wertz, J. K. McDonald, junior, J. R. Langborey, A. G. Gump, W. P. Lazelle, good and lawful men of the county aforesaid, who, being duly sworn to inquire, on the part of the Commonwealth, when, where, and how, and after what manner the said Jacob Hetzell came to his death, do say upon their oaths that the said Jacob Hetzell on the 27th day of January, 1883, in the county aforesaid, going into a coal mine at Jimtown it so happened that accidentally, easually, and by misfortune he, the said Jacob Hetzell, was killed by roof coal or slate falling upon him, of which said accident he, the said Jacob Hetzell, then and there died, and so the jurors aforesaid do say that the said Jacob Hetzell in manner and by means aforesaid accidentally, casually, and by misfortune came to his death, and not otherwise.

In witness whereof, as well as the aforesaid justice of the peace, the jurors aforesaid have to this inquisition set their hands and seals on the day and year aforesaid and at the place above mentioned.

J. K. McDONALD,
Justice of the Peace.

J. R. LANGBOREY, [SEAL.]

J. K. McDONALD, Jr., [SEAL.]

B. F. OGLEVEE, [SEAL.]

W. P. LAZELLE, [SEAL.]

JOHN H. WERTZ, [SEAL.]

A. G. GUMP, [SEAL.]

Witnesses sworn, Wilson Roper and Christian Hetzell.

STATE OF PENNSYLVANIA, } ss:
Monongahela City, Washington County,

An inquisition indented and taken at Riverview, Carroll township, Washington county, State of Pennsylvania, the 1st day of April, A. D. 1883, before me, R. Williams, alderman and *ex officio* a justice of the peace of the county aforesaid, upon the view of the body of Michael Lee, then and there lying dead, upon the oaths of John L. Scott, Joseph Roberts, Storer McFeely, William Hart, Samuel Luehm, and Patrick Long, who being sworn to inquire, on the part of the Commonwealth, when, where, how, and in what manner the said Michael Lee came to his death, do say, upon their oaths, that Michael Lee, about two o'clock, P. M., on Friday, the

30th day of March last, while engaged in mining coal in the Courtney coal mine, in Union township, county and State aforesaid, came to his death by a quantity of coal accidentally falling upon him and breaking his back, from the effect of which the said Michael Lee died in about two hours afterward, he first having been removed to his home in Carroll township aforesaid. And according to the testimony of Patrick Lee, William Dooley, and James Smith, all of whom state, under oath, their knowledge of the accident the said Michael Lee met his death, by an accidental fall of coal, and not otherwise. And the said jurors further say, upon their oaths, that the said accident was brought about, at least to some extent, by deceased's own negligence, he having neglected to sprag or prop the coal while he was working under it "*bearing in*," and leaving said coal in a dangerous condition.

In witness whereof, the alderman, acting coroner, and the jurors have to this inquisition set their hands and seals this 1st day of April, A. D. 1883.

R. WILLIAMS,

Alderman.

J. L. SCOTT, [SEAL.]

WILLIAM HART, [SEAL.]

^{his}
JOSEPH X ROBERTS, [SEAL.]
^{mark.}

SAMUEL LUEHM, [SEAL.]

STORER McFEELY, [SEAL.]

PATRICK LONG, [SEAL.]

TABLE I.—SHOWING LOCATION OF COLLIERIES IN THE FIRST BITUMINOUS MINE DISTRICT.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Montours,	Imperial Coal Company,	Allegheny.	F. C. Negley,	Fourth and Try streets, Pittsburgh.
Beech Cliff,	do.	do.	Robert Bell,	Mansfield Valley.
Phoenix,	Phoenix Gas Coal Company,	do.	Thomas M. Jones,	Pittsburgh.
Bell's Mines,	Mansfield Coal and Coke Company,	do.	George Z. Hosack,	Mansfield Valley.
American Iron Works,	Jones & Laughlin,	do.	W. J. Steen,	Fourth and Try streets, Pittsburgh.
Grant Mines,	Grant Coal Company,	do.	J. E. McCrickart,	337 Liberty street, Pittsburgh.
Camp Hill,	David Steen & Sons,	do.	Joseph McConnell,	Walker's Mills.
Fort Pitt,	Fort Pitt Coal Company,	do.	James Eweing,	do.
Pittsburgh Union,	Joseph McConnell,	do.	Thomas Duffy,	Corner Third av. and Try st., Pittsburgh.
Jackson,	James Eweing & Co.,	do.	Geo. W. Schneiderberg,	P. O. box 784, Pittsburgh.
Cherry,	Morris McCue,	do.	Edward Fisher,	P. O. box 906, Pittsburgh.
Oak Ridge,	Oak Ridge Coal Company,	do.	T. B. Robbins,	Midway, Washington county.
National,	National Coal Company,	do.	Hugh Knox,	413 Liberty street, Pittsburgh.
Willow Grove,	T. B. Robbins & Co.,	do.	S. B. Gregg,	Mansfield Valley.
Laurel Hill,	W. P. Rend & Co.,	do.	William Bains,	do.
Glendale,	S. B. Gregg & Brother,	do.	A. A. Hadden,	Woodville post-office.
Nixon,	Chartiers Valley Coal Company,	do.	A. J. Schultz,	Fourth and Try streets, Pittsburgh.
Black Diamond,	William Bains & Brother,	do.	John Watson,	Woodville post-office.
Summer Hill,	Frank Armstrong,	do.	Peter Trautman,	Pittsburgh.
Bower Hill,	A. J. Schultz,	do.	Charles Giles,	do.
Six-Mile Ferry,	H. B. Hays & Brother,	do.	John O'Neill,	Hope Church.
Beck's Run,	do.	do.	John Perrie,	No. 113 Water street, Pittsburgh.
Street's Run,	I. D. Risher,	do.	Thomas Foster,	Coal Valley.
Old Eagle,	W. H. Brown Sons,	do.	W. J. Morgan,	do.
Pine Run,	James Lynn & Co.,	do.	James Wilson,	Bridgeville.
Jefferson,	Foster, Clark & Wood,	do.	Joseph Griffiths,	Camden.
Slope Mines,	W. J. Morgan,	do.	J. S. Scott,	do.
Allequippa,	Balley, Wilson & Co.,	do.	Martin C. Gray,	Banksville post-office.
Canaan,	George Lysie & Sons,	do.	do.	do.
Rock Run,	W. J. Snodgrass & Co.,	do.	John C. Kapp,	do.
Venture,	Grey & Bell,	do.	D. Brown,	Water street, Pittsburgh.
Chess,	do.	do.	John W. Rilke,	Water street, Pittsburgh.
Coal Ridge,	do.	do.	do.	do.
First Pool Works,	Joseph Walton & Co.,	do.	Joseph Keellug,	do.
Star Mines,	F. Mandedick,	do.	John Carlin,	South Side, Pittsburgh.
Lower Works,	Joseph Walton & Co.,	do.	Thomas Fox,	Thirty-sixth ward, Pittsburgh.
Upper Works,	do.	do.	S. S. Crump,	do.
Keeling's,	Birmingham Coal Company,	do.	do.	do.
Eclipse,	John Carlin & Co.,	do.	do.	do.
Wood's Mine,	Wentengel & Gornuley,	do.	do.	do.
Nimick,	Thomas Fox,	do.	do.	do.
Enterprise,	Hartley & Marshall,	do.	do.	do.
Amity,	J. C. Risher & Co.,	do.	do.	do.
Enterprise,	O'Neill & Co.,	do.	do.	do.

TABLE I—FIRST BITUMINOUS MINE DISTRICT—Continued.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Fulton,	George Jones & Co.,	Allegheny,	Thomas M. Jones,	West Elizabeth.
Bellevue,	Munhall Bros.,	do.	John Munhall,	Honnestead.
Castle Shannon,	P. & C. S. R. Ry.,	do.	James M. Bailey,	Pittsburgh.
William Stone's,	William Stone's heirs,	do.	Joseph Stone,	McKeesport.
Green Springs,	Thomas Fausett,	do.	Thomas Carrick,	Bradock.
Cornell & Werling,	W. H. Brown Sons,	do.	Robert Cornell,	Boston post office, Allegheny county.
James O'Neill Mine,	James O'Neill,	do.	H. D. O'Neill,	McKeesport.
Milesville,	Robert Jenkins,	do.	Robert Jenkins,	Sunny Side.
Horner & Roberts' Mine,	Horner & Roberts,	do.	S. Roberts,	Elizabeth.
Lovedale,	John A. Wood & Son,	do.	J. G. Hollingshead,	do.
Bellevue Mine,	Gumbert & Huey,	do.	William Huey,	do.
Winoula,	James Skillen,	do.	James Skillen,	Shire Oaks.
Penney Mines,	Penney Coal Company,	do.	D. H. Lynch,	McKeesport.
Black Hills,	Rankin Coal Company,	do.		
Robbins' Mine,	W. H. Robbins & Co.,	do.		
Gilmore,	John Gilmore & Sons,	Westmoreland,	G. W. Gilmore,	Webster, Westmoreland county.
Rostraver,	Samuel Clarke,	do.	Solomon Stroup,	Lock No. 4, Washington county.
Iron City,	Phillips & Mittenzye,	Washington,	Adam Keli,	Webster, Westmoreland county.
Catsburg Mines,	Louis Stalb,	do.	James Jones,	Monongahela City, Pa.
Ivill Mines,	James Jones,	do.	Milo Gibson,	do.
Garfield,	J. S. Neel,	do.	do.	No. 10 Smithfield street, Pittsburgh, Pa.
Chicinnathi,	do.	do.	James Gamble,	do.
Banner,	Gamble & Risher,	do.	Robert Grechhalgh,	Shire Oaks, Washington county.
Cliff,	Scully & Co.,	do.	John McGonegal,	Coal Bluff, Washington county.
Courtney,	Courtney Coal Company,	do.	Jacob Toner,	Courtney, Washington county.
Stockdale,	Toner & McKinley,	do.	Henry Louttit,	Toner, Washington county.
Black Diamond,	W. H. Brown Sons,	do.	T. S. Hutchison,	Monongahela City.
Abe Hays,	Abe Hays Coal Company,	do.	George Lockhart,	do.
New Eagle,	Linsay & McCutcheon,	do.	James M. Bailey,	Courtney post-office.
Buffalo,	Chicago Gas Coal Company,	do.	J. Allison,	Pittsburgh.
Keystone,	Keystone Coal Company,	do.	S. H. Pearsol,	Washington.
Allison,	J. Allison,	do.	T. J. Woods,	West Brownsville.
Knob,	Knob Coal Company,	do.	W. S. White,	Woods' Run.
Caledonia,	T. J. Woods,	do.	T. H. Simons,	Canonsburg.
Locust Grove,	W. S. White & Son,	do.	John Cook,	do.
Enterprise,	Enterprise,	do.	D. M. Anderson,	Venitia post-office.
Cook Mines,	John Cook,	do.	J. C. Crain,	Midway post-office.
Anderson,	D. M. Anderson,	do.	Albert Shape,	Canonsburg.
Midway,	G. W. Crawford,	do.	T. B. Robbins,	Midway post-office.
Shape,	Shape & Co.,	do.	J. D. Saniters,	McDonald post-office.
Robbins,	Robbins Block Coal Company,	do.	Charles Young,	Allenport.
Brier Hill,	Patterson & Saniters,	do.		
Clipper,	Clipper Coal Company,	do.		

[illegible]

TABLE II—*A statement showing Characteristics, Number of Employés, Production, etc., of the respective Collieries in the First Bituminous Mine District, for the year ending October 31, 1883.*

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi- Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners— men.	Number of miners— boys.	Other employees.	Total employees.	Number of mules in- side.	Number of mules out- side.	Number of loco- matives.	Total production of coal in tons.
Abe Hays,	Bituminous,	Drift,	..	..	..	..	46	6	7	59	4	5	..	21 056
Allequippa,	do.	Drift,	..	..	..	..	177	3	17	195	9	1	..	7,639
American,	do.	Drift,	..	..	..	..	60	15	4	67	2	3	..	38,097
Amity,	do.	Drift,	..	..	..	..	152	4	21	191	12	8	..	4 000
Allison,	do.	Drift,	..	..	..	..	35	..	9	48	2	2	..	5,006
Anderson,	do.	Drift,	..	..	..	..	23	..	2	24	1	..	..	8 165
Banner,	do.	Drift,	..	..	..	..	63	5	6	75	5	..	..	65 959
Beech Cliff,	do.	Drift,	2	..	..	2	124	19	18	162	9	1	..	275
Bellewood,	do.	Drift,	..	..	..	..	90	4	16	110	5	..	..	25,863
Camden,	do.	Drift,	..	..	..	..	165	14	38	217	12	5	..	33,935
Castle Shannon,	do.	Drift,	..	..	..	..	117	18	12	146	8	2	..	9,189
Caledonia,	do.	Drift,	..	..	..	..	65	2	2	84	3	1	..	9,027
Carondelet,	do.	Drift,	..	2	..	2	43	..	10	86	5	..	..	17,500
C. E. L.,	Semi-bituminous,	Drift,	..	..	..	..	61	8	9	79	5	..	..	7,395
Champion,	Bituminous,	Drift,	..	..	..	..	67	8	5	81	3	2	..	24,384
Cliff,	do.	Drift,	1	1	160	3	102	14	20	137	6	..	..	3,773
Clipper,	do.	Drift,	..	..	..	..	60	10	10	80	5	..	..	4,556
Clinton,	do.	Drift,	1	1	..	1	12	2	16	1	1	..	..	3,345
Coal Bluff,	do.	Drift,	..	..	..	..	78	7	17	100	6	..	..	3,800
Courtney,	do.	Drift,	..	..	..	..	75	12	12	99	5	1	..	34,422
Cornell & Worling,	do.	Slope,	2	3	..	4	20	3	5	28	3	..	..	41,680
Cunard,	Semi-bituminous,	Shaft,	1	1	40	2	25	3	5	33	3	1	..	29,279
Duval,	do.	Drift,	..	..	..	..	15	1	5	21	1	..	..	7,800
Enterprise,	Bituminous,	Slope,	1	2	80	4	157	31	6	199	14	2	..	5,400
Enterprise,	do.	Drift,	..	..	..	..	69	10	17	35	3	1	..	5,300
Foundry,	do.	Drift,	..	..	..	..	18	..	2	15	2	1	..	2,395
Franklin,	do.	Drift,	..	..	..	..	38	..	30	68	5	2	..	6,152
Frick,	do.	Drift,	..	..	..	..	53	3	5	67	4	..	..	12,000
Garfield,	do.	Drift,	1	..	..	..	33	3	24	153	11	..	..	..
Glendale,	do.	Drift,	..	..	..	..	131	6	23	77	6	1	..	..
Green Springs,	do.	Drift,	1	1	35	2	12	..	..	..	..	..	..	..
Hanlin,	do.	Drift,	..	..	..	..	44	..	..	..	..	..	..	..
Henry Clay,	do.	Drift,	2	2	75	4	44	..	..	..	..	..	..	..
Horner & Roberts,	do.	Drift,	3	4	..	3	135	10	..	153	7	..	..	..

Ivill,	do.	1	25	1	132	9	22	162	8	..	..	13,773
Jefferson,	do.	1	100	4	178	6	18	203	7	2	..	4,000
Knob,	do.	1	20	5	74	5	7	86	6	..	..	..
Leith,	do.	4	4	2	48	3	9	66	10	3	..	..
Lelsenring,	do.	4	500	7	125	3	22	147	12	3	..	52,000
Lang,	do.	..	..	..	18	4	4	26	2	1	..	12,719
Little Pittsburg,	do.	..	..	..	12	..	3	15	2	2	..	68,005
Lower Road,	do.	4	4	5	219	10	35	264	9	2	..	4,000
Midway,	do.	1	20	3	67	7	11	90	6	1	..	18,000
Morgan,	do.	..	..	..	51	..	40	91	5	2	..	11,160
Montours,	do.	..	..	..	122	21	12	155	8	1	..	91,248
Morrell,	do.	2	120	4	125	15	47	184	14	3	..	..
National,	do.	2	..	1	50	2	8	60	7	3	..	..
New Eagle,	do.	1	..	1	50	9	8	67	3	..	..	..
Oak Ridge,	do.	..	..	..	67	7	13	87	6	1	..	..
Phoenix,	do.	..	..	..	55	..	8	63	4	..	..	3,773
Pine Run,	do.	..	..	..	211	20	30	262	10	3	..	40,487
Primrose,	do.	1	20	1	90	15	14	119	6	..	..	7,000
Rock Run,	do.	..	..	..	111	10	16	137	4	3	..	6,579
Streets Run,	do.	1	80	4	116	17	26	151	9	4	..	19,846
Summit,	do.	..	..	..	36	..	34	70	5	3	..	15,000
Summer Hill,	do.	..	..	..	100	7	14	121	5	..	..	3,000
Tiptop,	do.	..	..	..	20	..	15	35	5	1	..	7,000
Tremont,	do.	..	..	..	51	6	6	57	5	..	..	14,655
Trotter,	do.	2	4	6	85	6	16	95	7	5	..	84,191
Tyrone,	do.	..	..	..	32	4	4	40	8	1	..	23,515
Umphre,	do.	..	..	..	83	11	13	107	4	4	..	14,965
Upper Road,	do.	..	..	..	216	10	35	264	18	..	..	26,999
Valley,	do.	1	60	3	50	..	50	100	5	2	..	16,100
Wheeler,	do.	2	1	2	31	4	16	50	4	4	..	31,401
White,	do.	1	60	2	55	..	76	131	5	2	..	16,000
Woods Run,	do.	..	..	..	58	4	3	65	3	2	..	..
Youngstown,	do.	3	150	5	94	..	120	214	8	7	..	21,074

TABLE III.--A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the First Bituminous Mine District.

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
American,	Furnace,		36 x 5			6		
Amity,	Furnace,		24			5	56	56
Anderson,	Natural,					3	35	36
Allison,	Natural,					5	42	
Abe Hays,	Furnace,		18 x 6½			5	33½	
Allequippa,	Furnace,		8 x 5½			5	48	48
Banner,	Furnace,		7 x 7 x 22			12	40	45
Beech Cliff,	Furnace,		24 x 7 x 5				42	36
Bellwood,	Natural,							
Caledonia,	Furnace,					6	49	56
Camden,	Furnace,		8½ x 24			11	40	40
Castle Shannon,	Furnace,					5	35	35
Carondelet,	Furnace,		6 x 18				64	49
Champion,	Furnace,		6 x 6				36	36
Cliff,	Furnace,		9 x 4½ x 5			14	27½	693
Clipper,	Furnace,		8 x 15			3	64	49
Coal Bluff,	Furnace,		6½ x 8			6	30	36
Courtney,	Furnace,		24 x 7			6	42	42
C. E. L.,	Fire Basket,					6	74	36
Cunard,	Natural,					1	30	24
Clinton,	Furnace,		6 x 16			3	56	56
Cornell & Worling,	Furnace,		30 x 6½			12	44	42½
Duval,	Natural,						48	48
Enterprise,	Fan,	16				9	45	45
Enterprise,	Natural,					4	35	35
Foundry,	Furnace,		9 x 25			4	42	54
Frick,	Furnace,		9 x 25			5	42	48
Franklin,	Natural,					2	56	56
Garfield,	Furnace,					15	48	48
Glendale,	Furnace,						42	42
Green Springs,	Natural,					5	48	36
Henry Clay,	Natural,					5	56	42
Ivil,	Furnace,					6	48	36
Jefferson,	Fan,						35	35
Knob,	Furnace,		6 x 4			18	42	45
Lcith,	Fan,	6				20	192	192
Leisnering, No. 1,	Fan,					2	56	56
Little Pittsburgh,	Natural,							
Lower Road,	Natural,					4		
Midway,	Furnace,		6 x 4			2	36	36
Morrell,	Fan,	6				14	100	105
Morgan,	Furnace,		9 x 25			6	48	42
Montours,	Furnace,						49	36
National,	Steam exhaust,					3	35	36
Oak Ridge,	Furnace,		6 x 28			7	48	49
Pine Run,	Furnace,		6 x 20					
Phoenix,	Furnace,		8 x 4½ x 4			3	48	48
Primrose,	Furnace,		3 x 6			5	48	36
Rock Run,	Natural,					4	35	30
Streets Run,	Furnace,		16 x 20			4	35	64
Summit,	Furnace,		8 x 25			7	48	56
Summer Hill,	Steam exhaust,						42	36
Fremont,	Furnace,					5		
Trotter,	Fan,	6				14	64	216
Tyrone,	Natural,					2	56	56
Tiptop,	Natural,					6	48	48
Upper Road,	Natural,					6		
Umpire,	Furnace,		7 x 7			4	49	52
Valley,	Furnace,		8 x 22			6	48	48
Wheeler,	Steam exhaust,					4	56	64
Woods Run,	Furnace,		5 x 6			6	42	30
White,	Furnace,		7 x 20			10	65	54
Youngstown,	Steam exhaust,					6	52	

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries in the First Bituminous Mine District, for the year 1883.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Abe Hays,	120	7,224	120	8,128	750	47,552	369	16,605	162	8,072	97	1,395	330	14,500	210	9,290	180	9,000
Allequippa,	208	11,648	130	6,311	160	10,240	120	5,880	184	10,304	175	11,200	540	21,035	340	12,920	580	22,420
Amity,	200	8,000	186	10,416	216	12,096	216	12,096	134	10,304	224	12,544	256	14,336	218	1,228	231	12,936
Carondelet,	300	16,800	100	4,200	700	38,200	200	8,400	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400
C. E. L.,	175	9,800	125	7,000	225	10,000	185	10,360	164	9,184	196	10,976	212	11,872	165	9,240	215	12,020
Castle Shannon,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	197	8,674	155	6,310	155	6,310
Deer Park,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	320	13,440	110	4,400	215	12,040
Eclipse,	175	9,800	125	7,000	225	10,000	185	10,360	164	9,184	196	10,976	320	13,440	110	4,400	215	12,040
Franklin,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	11,200	16,088	7,248	13,500	11,400	11,400
Greenfield,	120	7,224	120	8,128	750	47,552	369	16,605	162	8,072	97	1,395	330	14,500	210	9,290	180	9,000
Green Springs,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	180	6,840	145	6,815	300	7,200
Hyndman,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	300	9,000	120	4,200	300	9,000
Ivill,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	483	48,800	76	4,864	463	48,615
Jefferson,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	140	5,160	99	3,465	360	14,400
Knob,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Lemont,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Leith,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Lelsenring,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Lang,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Midway,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Morrell,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
McConnell's,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Nixon,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Oak Ridge,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Palmrose,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580
Street's Run,	200	8,000	100	4,200	200	8,400	200	8,400	100	4,200	200	8,400	250	4,000	140	5,160	405	14,580

TABLE IV.—VENTILATION OF COLLIERIES—Continued.

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Trotter,	240	13,440	240	12,000	250	12,500	430	24,080	350	13,750	370	18,500	650	27,500	430	21,500	450	27,500
Tyrone,	120	6,720	120	6,720	150	8,400	120	6,720	350	18,375	350	18,375	350	17,150	350	18,375	350	18,375
Umpire,	120	6,720	51	3,264	104	6,656	350	17,150	350	18,375	107	6,848	350	17,150	51	3,264	109	6,976
Wheeler,	120	6,720	602	1,924	821	15,906	122	6,832	52	3,328	107	6,848	124	6,994	51	3,264	821	53,159
Youngstown,	044	20,608											707	36,764				

TABLE IV.—VENTILATION OF COLLIERIES—Continued.

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Abe Hays,	490	18,169	320	13,440	220	22,880	460	17,480	320	11,500	400	13,600	330	18,480	290	13,380	290	15,120
Alliquippa,	210	23,440	180	11,520	190	12,160	150	9,900	100	4,200	150	15,920	175	11,200	180	8,100	190	9,340
Amity,	96	10,000	200	8,400	230	9,000	78	9,900	100	4,200	120	9,600	90	10,000	130	3,120	120	9,600
Carondelet,	200	8,400	200	8,400	230	8,400	150	5,250	100	4,200	150	5,250	200	6,000	130	3,120	200	8,000
Clinton,	200	26,750	130	3,120	200	3,000	150	5,250	100	4,200	150	5,250	200	6,000	130	3,120	200	8,000
C. E. L.,	240	18,080	40	2,080	210	10,680	150	5,250	100	4,200	150	5,250	200	6,000	130	3,120	200	8,000
Castle Shannon,	400	16,800	160	6,720	600	32,400	400	16,800	160	6,720	600	32,400	400	16,800	160	6,720	600	32,400
Cliff,	187	7,853	155	6,510	197	8,674	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Cunard,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Deer Park,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Eclipse,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Franklin,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Foundry,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Greenfield,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Greensprings,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Garfield,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Hyndman,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Henry Clay,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Ivill,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Jefferson,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Knob,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Lehigh,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Lehigh,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Lang,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Midway,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Morrell,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
McConnell,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400
Morgan,	170	8,160	30	1,680	270	7,920	400	16,800	160	6,720	200	8,000	400	16,800	160	6,720	600	32,400

TABLE IV.--VENTILATION OF COLLIERIES--Continued.

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Nixon,	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Oak Ridge,	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Primrose,	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Street's Run,	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Summit,	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trotter,	340	16,320	120	6,240	440	23,100	370	12,720	359	19,396	380	22,800	370	12,720	359	19,396	380	22,800
Tyronce,	650	29,400	430	24,080	420	25,200	370	12,720	359	19,396	380	22,800	370	12,720	359	19,396	380	22,800
Tyronce,	200	11,200	250	14,000	200	11,200	240	13,440	250	14,000	250	14,000	250	14,000	250	14,000	250	14,000
Riptop,	140	8,190	25	1,200	170	8,160	240	13,440	250	14,000	250	14,000	250	14,000	250	14,000	250	14,000
Umple,	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Valley,	270	15,120	50	2,400	350	13,845	120	6,720	48	3,072	104	6,056	200	11,200	35	8,050	30	1,440
Wheeler,	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
White,	100	8,320	30	1,440	500	16,000	120	6,720	48	3,072	104	6,056	200	11,200	35	8,050	30	1,440
Youngstown,	330	10,560	.	.	520	37,310	120	6,720	48	3,072	104	6,056	200	11,200	35	8,050	30	1,440

TABLE IV.—VENTILATION OF COLLIERIES.—Continued.

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Banner,	100	4 200	100	3,500	100	4 200	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Castle Shannon,	200	6,000	130	3,120	120	2 880	120	4 320	225	3,375	330	9,900	175	6,500	130	2,600	400	12,300
Coal Bluff,	200	10,000	400	14 250	370	18 000	400	21 600	300	13,500	400	18,000	400	21,600	350	18,900	420	22,630
Courtney,	90	10,000	400	14 250	370	18 000	400	21 600	300	13,500	400	18,000	400	21,600	350	18,900	420	22,630
C. E. L.,	400	19,600	400	14 250	370	18 000	400	21 600	300	13,500	400	18,000	400	21,600	350	18,900	420	22,630
Enterprise,	400	19,600	400	14 250	370	18 000	400	21 600	300	13,500	400	18,000	400	21,600	350	18,900	420	22,630
Garfield,	400	19,600	400	14 250	370	18 000	400	21 600	300	13,500	400	18,000	400	21,600	350	18,900	420	22,630
Horner & Roberts,	400	19,600	400	14 250	370	18 000	400	21 600	300	13,500	400	18,000	400	21,600	350	18,900	420	22,630
Ilvill Mines,	225	11,025	123	6,030	225	8,100	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Leisenring,	225	8,100	120	4,200	225	8,100	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Midway,	430	43,000	73	4,572	409	42,945	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Morrell,	430	43,000	73	4,572	409	42,945	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Oak Ridge,	160	7,680	86	7,680	86	4,208	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Summer Hill,	160	7,680	86	7,680	86	4,208	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Streets Run,	375	21,000	375	20,250	410	24,600	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Tomer & McGlinley,	375	21,000	375	20,250	410	24,600	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Trotter,	200	11,200	200	11,000	210	11,700	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Tyrone,	120	6,720	52	3 328	104	6,656	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200
Wheeler,	120	6,720	52	3 328	104	6,656	430	17,300	300	13,500	500	20,000	420	18,000	425	17,000	455	18,200

TABLE IV.—VENTILATION OF COLLIERIES.—*Continued.*

NAME OF COLLIERY.	OCTOBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Amlty,	320	15,360	230	11,040	330	19,820
Banner,	400	16,800			510	20,400
Castle Shannon,		5,250				5,250
Enterprise,	400	21,600	375	16,875	420	21,000
Horner & Roberts,					365	17,520
Jefferson,	118	5,200		3,800		8,445
Lovedale,	450	18,000	230	9,800	480	21,120
Midway,	100	7,000				
National,		6,755				14,104
Oak Ridge,	110	5,280			390	15,600
Streets Run,	350	14,350			355	14,555
Summer Hill,		11,000				13,000
Woods Run,		6,000				7,000

LIST OF ACCIDENTS occurring in the mines of the First Bituminous Coal District of Pennsylvania, for the year ending October 31, 1883.

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Jan. 12	Ross F. Matlaek.	28	Single.	..	..	..	Jan. 15	Killed by fall of roof.
Jan. 23	Martin Gallagher.	35	Married.	..	..	..	..	Flesh wound.
Feb. 7	Henry Devlin.	35	Married.	..	..	..	..	Collar bone broken.
Feb. 28	Unknown.	40	Single.	..	..	..	..	Injured while on horse-back.
Feb. 28	Unknown.	38	Single.	..	..	..	..	Injured white on horse-back.
Mar. 1	Joseph Shaeffer.	55	Married.	..	..	..	Feb. 1	Killed in slope by empty ears.
Mar. 16	Frederick Craven.	73	Married.	..	..	..	..	Killed by fall of slate.
Mar. 22	George Taylor.	53	Married.	..	..	..	..	Leg broken by fall of coal.
Mar. 28	J. H. Fields.	25	Married.	..	..	..	..	Injured by fall of coal.
Apr. 1	Howell Evans.	50	Married.	..	..	..	..	Injured by fall of slate, slightly.
Apr. 27	David Lloyd.	52	Married.	..	..	..	..	Injured by fall of slate, slightly.
Apr. 24	Michael Collins.	40	Married.	..	..	..	..	Leg crushed by slate.
Apr. 30	Robert Stockdale.	48	Married.	..	..	..	..	Back injured by slate.
Apr. 26	Gad. Thomas.	30	Single.	..	..	..	..	Injured seriously by coal ears.
Apr. 20	James Wetsell.	30	Single.	..	..	..	..	Three ribs broken.
Apr. 27	Thomas Hughes.	13	Single.	..	..	..	..	Legs broken by coal ears.
Apr. 21	Peter Wexham.	57	Married.	..	..	..	..	Rib broken by post.
Apr. 23	George Federse.	22	Single.	..	..	..	..	Burnt by fire-damp.
Apr. 23	Samuel Craig.	25	Married.	..	..	..	..	Burnt by fire-damp.
Apr. 23	James Glaeken.	45	Married.	..	..	..	..	Burnt by fire-damp.
Apr. 23	Frank Brady.	..	Single.	..	..	..	..	Bruised foot.
May 2	Jacoby Billet.	38	Married.	4	..	..	..	Killed by a fall of slate.
May 14	John Rodgers.	16	Single.	..	..	..	..	Hand crushed by ears.
May 21	George Thomas.	22	Married.	1	..	..	..	Fatally injured by being caught between cars.
May 23	John Christy.	25	Married.	..	..	..	..	Crushed by ears.
June 16	Rueben Ferbee.	21	Single.	..	..	..	..	Killed by falling slate.
June 26	Thomas Richards.	59	Married.	..	..	..	..	Hurt slightly on back in Amity mines.
June 28	James Pippins.	35	Married.	..	..	..	..	Hurt in Clipper mine.
June 28	James Salome.	..	..	..	..	..	..	Slightly hurt in Glendale mine.
July 11	James Pernish.	31	Married.	..	..	..	..	Killed by falling slate in Imperial Coal Company's mines.
July 18	Peter Flinnigan.	23	Single.	..	..	..	..	Burnt by explosive gas in Morrel Slope, C. I. Co. mines.
July 25	Albion Weigle.	15	..	..	..	..	..	Injured slightly by a fall of roof-coal in I. D. Risner's mines.
July 16	Peter Gallagher.	..	..	..	..	..	July 16	Leg injured by being squeezed between loaded cars in Wheeler Slope; Cambria Iron Co., operators.

LIST OF ACCIDENTS—Continued.

Date of accident.	NAME OF PERSON IN- JURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investiga- tion.	Nature and Cause of Accident.
July 27	W. P. Vance,	34	Single, . . .	1	.....	.....	.....	Fatally injured by falling slate in Lower Mines; Joseph Walton & Co., operators.
Mar. 30	Robert Stockdale,	52	Married, . .	2	.....	.....	.....	Injured by falling slate in Caledonia mines; died June 30, 1883.
21	James Jenkins,	19	Single, . . .	.....	.....	.....	.....	Hurt by falling slate in Courtney mines.
No date	Robert Craig,	50	Married, . .	.....	.....	.....	.....	Leg broken by falling slate in Gardfield mines.
	James Cummings, . . . . .	..	Single, . . .	.....	.....	.....	.....	Fatally injured by wagons running over him; he lived about eleven hours after the accident, which happened in Summer Hill mines; Frank Armstrong, operator.
Sept. 15	John Milligan,	35	Single, . . .	.....	.....	.....	.....	Shoulder knocked out from the jar of a shot in the next room to where he was at work in the Ivy mines; James, operator.
Oct. 12	Thomas Shields,	14	Single, . . .	.....	.....	.....	.....	Leg injured by empty ear in Enterprise mines; Hartley & Marshall, operators.
20	Frank Moorcross, . . . . .	..	Single, . . .	.....	.....	.....	.....	Leg broken by being run over by full ear in Horner and Roberts mines.
19	Marquest Paterson,	18	Single, . . .	.....	.....	.....	.....	Killed in Jefferson mines; Foster, Clark & Co., operators.
28	Cameron Heil,	30	Single, . . .	.....	.....	.....	.....	Slightly bruised on left leg by falling coal in Phoenix mines; Stewart, Lewis & Co., operators.

SECOND DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania*:

SIR: In accordance with the provisions of the ventilation law, entitled "An act providing the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania," I have the honor of submitting the within report. Since the passage of the above act and its approval, April 18, 1877, creating the office of mine inspectors, there have been several amendments passed and approved which change some of the provisions of that act, increasing the number of mine inspectors, and redistricting the bituminous coal-field. The second district, as it was at the beginning of the year 1883 and until the appointment of the two additional inspectors, pursuant to the amendment of June 13, comprised the counties of Beaver, Butler, Armstrong, Indiana, Westmoreland, and that portion of Allegheny lying north of the Ohio, Monongahela, and Youghiogheny rivers. Since the said appointments the second district comprises that part of the county of Allegheny lying east of the rivers of Allegheny, Monongahela, and Youghiogheny, and all that part of Westmoreland lying east of the Youghiogheny river.

There are in the district at present 85 mines; of this number there were 77 operated during the year. The mines have not been run to their full capacity, and many of them only running part time. This is caused to a certain extent by the present condition of the iron and steel industries of the country, on which the demand for coal and coke is greatly dependent. Owing to the change in the district, I have not been able to compare the product of the district with former years. The general condition of the mines is still improving and a better system adopted in many of them. The single-entry system, which was almost universally used in the bituminous coal mines of the State, is abandoned, and the parallel or double-entry adopted. This new system adds greatly to the benefit of both the operator and the miner; it increases the factor of safety; it facilitates the hauling of the coal from the head of the workings to the pit-mouths; it lessens the number of mules and costs of hauling; it gives better supports to the main hauling and traveling-ways; and it affords to the manager or man in charge a better means of establishing a permanent system of ventilation—one that can be continued from the time of opening the mine to its close when the mineral is exhausted.

In the present report will be found a list of accidents, as reported from the 1st of January to the 1st of November, 1883. There are included in the

number, nine accidents, three fatal and six non-fatal, that were reported from mines that are at present in the first district, but at the time the accidents occurred they were in the second district. Total number of accidents, fifty-four. Total number of persons injured, fifty-five. Of this number fourteen were fatally injured and either dead when found or died shortly afterwards. The other forty-one were of a non-fatal nature; but still there were many of the persons who were injured sufficiently severe to cripple and leave its mark on them for life.

In examining the cause of the accidents, we find that of the fatal there were eleven caused by falls of slate, two by pit-wagons and machinery, and one by a descending cage in the shaft. Of the non-fatal we find twenty-two injured by fall of slate and roof, three by fall of coal, two by explosion of gas, ten by pit-wagons and machinery, and four by miscellaneous causes.

In comparing the number of persons injured by accidents in the ten months, with the number of persons employed, we find that the percentage is less than that of 1882. We also find that there are less number of lives lost to the total amount of coal mined compared with the same period. .

The following is the estimated amount of coal mined in the district, including those mines only that were in the district from January 1 to November 1, 1883. The total production of the mines taken from this district into other districts will be taken in the districts where they belong at present:

Total number of tons mined of 2,000 pounds each,	4,039,335
Average out-put per mine,	52,458
Average number of persons employed inside,	7,459
Average number of persons employed outside,	2,188
Total number of persons employed,	9,647
Total number of tons mined for each fatal accident,	367,212
Number of tons mined for each casualty,	87,811
Number of persons employed to each casualty,	209
Average number of days worked,	<u>208</u>

In addition to the tables found in the report, there is a description of some of the mines visited and a descriptive list of fatal accidents; also a map of No. 4 mine of the Penn Gas Coal Company, showing their new plan of working that mine.

A drawing of the new "Cornish pump," working at the Westmoreland shaft of the Westmoreland Coal Company. A full description of this powerful pump is given by the engineer of the company.

There is also a drawing of the coal-washer in use at the Monastery mine of H. C. Frick Coke Company, furnished by Mr. Robert Ramsey, which will be published with this report.

Yours, very respectfully,

J. J. DAVIS.

PITTSBURGH, *December 3, 1883.*

At a meeting of the Bituminous Mine inspectors in the city of Pittsburgh, it was agreed to issue a circular letter "to the owners, operators, agents, and mining-bosses of the bituminous coal mines of Pennsylvania."

[Said circular will be found in the report of the Inspector of the First Bituminous District.]

EXAMINATION OF MINES AND MINE IMPROVEMENTS.

Fairbank Mine.

Mine operated by the Saltsburg Coal Company.

Superintendent, D. S. Robinson. Mining-boss, J. B. Johnston. A drift opening with the workings in some parts on the double-entry system, and in other parts on the single-entry plan. The entries are driven seven and one half feet wide, and six feet high, and the roads are well laid with T rail. on all the main and cross entries. The room roads are laid with 3"×4" wooden rail. The width of rooms is eighteen feet, and ribs twelve feet. Thickness of coal about six feet.

The coal is hauled by mules to the mouth of the pit, and then by a five-ton locomotive through a tunnel to the tipples.

This mine was in very good condition at the time visited on the 29th of June. All the main roads dry and in good working order. The ventilation satisfactory, and those in charge are always anxious to do all in their power for the proper management of the mine and the comfort of those in their employ, and wherever this spirit is manifested there is not much danger of things going wrong nor of unnecessary waste of materials.

The ventilation is produced by furnace, which draws the air from two intakes. These separate currents are carried around different parts of the mine on their way to the furnace shaft.

Coulter & Huff Mine.

Operated by Coulter & Huff. Located east of Greensburg, on the Pennsylvania railroad, in Westmoreland county. This mine is a slope opening. Superintendent, A. W. Jones. Mining-boss, Levi Ludwick. There are four openings to this mine, two of these are drifts, the others are shaft and slope. The main hauling-way is through the slope. The mine was visited on the 12th of April, and on the 29th of July. I was called there in July to investigate an accident that resulted in the death of Charles Kaylor by a fall of slate.

The mining is in four entries, Nos. 4, 5, 6, and 7 butt; size of entry, eight feet wide, and from five and a half to six feet high; rooms, twenty-one feet wide, and ribs, fifteen feet.

The ventilation is produced by a Murphy fan six feet in diameter, which has power sufficient to cause a strong current of air to pass through the workings, and with its proper distribution there should not be any fear of the mine not being properly ventilated.

There are employed inside over a hundred miners, and from twenty-eight to thirty others employed in hauling the coal out and performing other

labor inside and outside from the head of the workings to the tipples. An air-measurement taken while at the mine showed a velocity of seven hundred and twenty feet per minute in the return near the bottom of the fan-shaft section; area, $6' \times 6'$.

Monastery Mine

Is a slope opening located on the Pennsylvania railroad, west of Latrobe, Westmoreland county. Owned and operated by H. C. Friek Coke Company. Superintendent, Robert Ramsay. Mining-boss, John Sneddon. Visited on the 6th of April. At that time the number of miners employed, one hundred men and eight boys. Room-workings in five entries. Size of entry, $7\frac{1}{2}' \times 6'$. Size of rooms, sixteen feet wide, and ribs, nine feet.

The ventilation produced by furnace. Air measurements taken, showing the intake current on slope, having a velocity of two hundred and eighty feet per minute; area, $9' \times 7'$. Velocity, between third and fourth butt, on west side, one hundred and forty-five feet per minute; area, $6' \times 7'$. In the return on the east side the velocity was one hundred and thirty feet per minute; area, $6' \times 6'$, and in the west side return, velocity, one hundred and eighty feet per minute; area, $6' \times 8'$. They have two hundred and eight coke-ovens at this mine, and a part of the product is turned into coke. In preparing the coal prior to coking they use a washer, a drawing of which has been furnished for this report by the superintendent, Mr. Robert Ramsay, with the following description:

"The drawing is a side view of the coal-washer now in use at the Monastery coke-works of the H. C. Friek Coke Company. The capacity per day of ten hours is five hundred tons of washed coal. The operation of this machine will be easily understood on reference to the drawing. The coal, after passing through rolls driven by a special engine, is carried by elevators to a sufficient height to fall into the box I, from where it is washed by a strong current of water from a centrifugal pump, and distributed over the screens F. At this point the washing of the coal begins, and is carried forward by the pulsative action of the water produced by the piston C. The agitation of the coal resting on the screens allows the slate and other impurities to settle to the bottom, from where it is slushed out at regular intervals depending on the percentage of slate contained in the coal. The washed slack passes forward and falls into the settling tank G, from where it is raised by elevators to a large bin which supplied the larries that charge the ovens."

Latrobe Coal Works.

This mine is a slope opening, west of Latrobe, Westmoreland county, located near the Pennsylvania railroad. Superintendent, D. W. Jones. Mining-boss, Alexander Sneddon. Number of openings, two—one a slope and the other a drift. Number of miners when visited on the 5th of April, sixty-four men and four boys. Number of entries working, three. Size of entry, $7' \times 7'$. Rooms sixteen feet wide and ribs nine feet.



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MAP

W. H. TRAIL

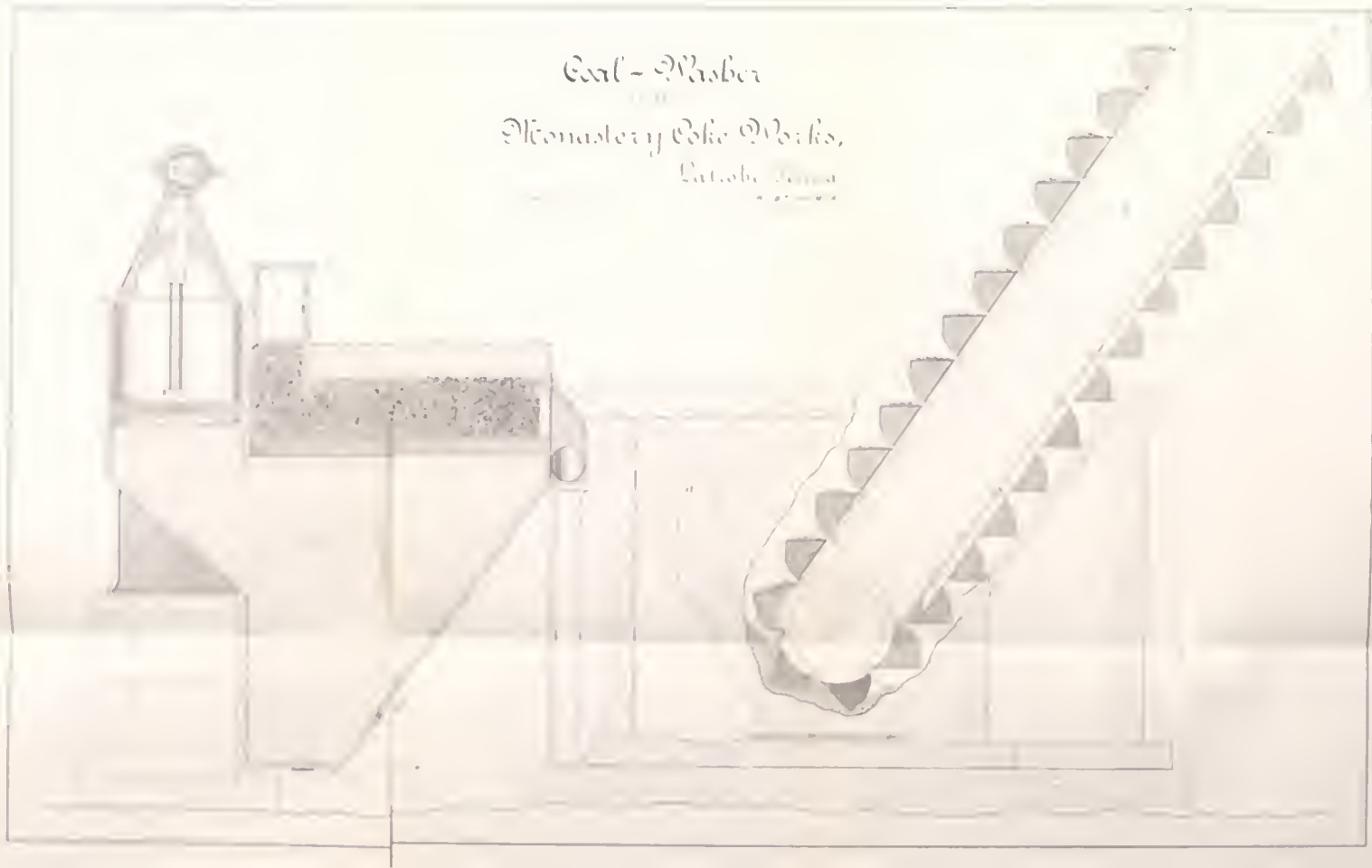
S. H. L. S. A. B.

W. H. TRAIL

Coal - Washer

1888

Monastery Coke Works,
Cathlamet, Wash.



They have sixteen coke-ovens in which they coke the slack. The mine and coke-ovens are operated by the Latrobe Coal and Coke Company, and their property joins that of the Monastery mine property.

Penn Gas Coal Company Mines.

This company has had in operation during the year four of their large mines—the Penn Gas No. 1. shaft; Penn Gas No. 2, shaft; the Coal Run, a drift opening, and the No. 4 mine, which is also a drift opening. The two shaft mines are ventilated by fans; each has a twelve-foot exhaust fan. The drift mines are ventilated by furnaces. They are all worked on the double-entry system, which contributes greatly to the easy manner in which they handle their large daily product and shipments, and also to the ventilation, by giving them the means of splitting the air, thereby increasing the quantity, in place of being compelled to force a large volume through a single contracted air-passage, which would have been extremely dangerous where so much gas is generated.

These mines are all under the superintendency of Mr. William Wilson, with experienced mining-bosses in charge of the underground works. The mining-boss at the two shaft mines is Mr. John Bolan.

At No. 2 shaft they are preparing to build an eighteen-foot fan. While on a visit to this shaft on the 2d of November the following air-measurements were taken: The return air-current, near bottom of up-cast, velocity, eight hundred and sixty feet per minute; section area, forty square feet, face of main entry, velocity, three hundred and thirty feet per minute; section area, forty-eight square feet, volume, fifteen thousand eight hundred and forty cubic feet. Middle main, velocity of air-current, four hundred and thirty feet per minute; section area, forty-eight square feet, volume, twenty thousand six hundred and forty cubic feet. At No. 4 mine they have changed their plan of working. A map of this mine accompanies this report. Mr. T. Frank Wolf, assistant engineer of the company, explained the map, as follows: "You will see by this map that we have adopted a new mode of working bituminous coal. Rooms are driven with a road on both sides and the *gob* in the middle, which makes an air-passage around face of the room at all times. Ribs are about fifteen yards thick, seven and a half yards of which are drawn from road on each side of the rooms. The advantage over old style of working is: Nearly two thirds ($\frac{2}{3}$) of the coal is in ribs, which gives the miner open ends to work on. The coal is not crushed, as in the old style of ribs. It avoids greeps or squeezes, as the coal in the ribs is strong enough to withstand any pressure. Samuel Stone is mining-boss. At shaft No. 1, on the Pennsylvania railroad, we have built a new tipple, repaired the fan, and graded our main hauling-roads in the mine, laying thirty-pound iron on the full road. At shaft No. 2, on Y. R. R., we built an incline plane to get rid of waste from the mine, using small engine and wire-rope. The plane is four hundred and fifty feet long and of an elevation of about sixteen degrees. Also, foundations are

built for a Snyder fan, eighteen feet in diameter, which will be put up this fall to take the place of the present one, twelve feet in diameter."

Osceola Mine.

Mine located on the B. & O. R. R., and operated by the Osceola Coal Company.

Superintendent, J. H. Dewees. Mining-boss, James W. Shields. Drift opening with incline plane. Most of the workings are single entries with rooms and ribs, but there are two new entries which were driving at the time I visited the mine, on the double-entry plan. I advised the party in charge to follow this plan in the future working.

This mine employs about one hundred and thirty miners and eight boys, thirteen mules inside and one outside. There are about twenty persons employed by the day including both inside and the outside hands. The ventilation of the mine depends on natural means. There are several openings to the crop.

Alpsville Mine.

Mine operated by Thomas Hackett & Co. Superintendent, J. F. Anderson. Mining-boss, James Painter.

A drift opening worked on the single-entry plan. When visited on the 10th of August there were employed of miners one hundred and thirty men and fifteen boys. Size of entry, 8'×5'. Rooms, twenty-one feet wide and ribs nine feet. Nearly all the entries are driven to day-light. Gauge of pit roads, four feet. Thickness of coal, 4' 10". The general condition of the mine, as regards both ventilation and drainage at the time visited, in fair order.

Smithton Mines.

These mines are two in number, located near Smithton Station, on the B. & O. R. R. Operated by B. F. Rafferty & Co.

Superintendent, Charles Armstrong, junior. Mining-boss, William Billingsley. These mines are drift openings. I visited both of these mines on the 24th of May and also on the 18th of September. The mode of working is at present double entry. Size of entry from seven and one half to eight and one half feet wide and about seven feet high. The rooms are from twenty-one to twenty-four feet wide.

The ventilation produced by furnaces. There being a furnace in each mine. Air measurements taken in No. 1 mine, when visited in September showed a velocity in the inlet current, near end of line hauling, of two hundred and seventy feet per minute; section area, 8'×7'; volume fifteen thousand one hundred and twenty cubic feet, and an outlet current near furnace having a velocity of three hundred and thirty feet per minute, and fifty-six square feet of area. Volume, eighteen thousand four hundred and eighty cubic feet.

In No. 2 mine there are two splits in the return air-current. They unite near the furnace. The one from the McClay entry showed a velocity of one hundred and twenty feet per minute; size 6'×5'=30; volume three

thousand six hundred. The one in the main outlet, velocity one hundred and ninety feet per minute, size of opening $9 \times 6 = 54$ feet; volume ten thousand two hundred and sixty cubic feet. The coal from both of these mines is hauled to the tippie by a stationary engine and the tail-rope system, which extends quite a distance into the No. 1 pit. The coal from No. 2 is hauled by mules to the mouth of No. 1 where it is attached to the rope.

Eureka Mine.

This mine is operated by Fox, Kifer & Co., and located in Westmoreland county.

Superintendent, W. A. Kifer. Mining-boss, James McColligan.

It is a drift opening and has a tippie on the B. & O. R. R. The inside workings are partly on the single-entry plan with the exception of Nos. 6 & 7, which are parallel double entries. On the 14th of August last, the room and rib workings in use were in No. 3 & 5 entries. Number four single entry had been crushed by a squeeze, and workings in it suspended. The ventilation and drainage of the mine were in fair condition. The ventilation is produced by a furnace. It would have been beneficial for this mine had its workings been driven all on the double-entry plan. It would have added strength to its pillars and supports, and it may have prevented the creep and crush from overtaking part of its workings.

This mine generally employs from seventy to eighty miners. Air measurement taken near furnace showed velocity of two hundred feet per minute, at a place having about fifty-six feet area.

Oak Hill, No. 3.

Mine operated by the N. Y. & C. G. C. Co., located near Turtle Creek, Allegheny county.

Superintendent, Mr. John McIntosh. Mining-boss, William P. Owens. Mine a drift opening worked on the single-entry plan. The working at the time visited July 25th were ribs mostly. This mine stopped in January, 1882, and was idle till June, 1883, and in the opinion of parties at the mine, if it continues running that it will be all worked out within a year.

The ventilation is produced by furnace air—measurements taken showing an air current in the intake, between Boden and White entries, having a velocity of one hundred and fifty feet per minute. Size of opening, $8' \times 5' = 40$ square feet—volume=six thousand.

Velocity in return current one hundred and forty feet per minute, sec. area $8\frac{1}{2}' \times 5' = 42\frac{1}{2}$.

The number of miners employed in month of October were fifty-five men and eight boys. Other persons employed eight, total seventy-one.

Oak Hill, No. 4.

Mine owned and operated by the N. Y. and C. G. C. Company. Located near Turtle creek. Superintendent, John McIntosh. Mining-boss, William P. Owens.

Drift opening, worked on the single-entry system. The workings are extensive, employing between two and three hundred persons. The following is the number of persons employed when visited on the 26th of July: Miners, one hundred and eighty-eight men and fifty boys; day-men, thirty-four. The mine is ventilated by a furnace. There are two inlets, Nos. 1 and 2, and there are eight available openings. The entries are driven eight feet wide and five feet and a half high. The rooms are twenty-one feet high; ribs twelve feet. The general condition of the workings, at the time visited, were in good order. The air measurement, taken near furnace, showed that the air-current was traveling at a velocity of five hundred and seventy feet per minute; section area, forty-six square feet, volume, twenty-six thousand two hundred and twenty.

Southwest Mine.

Mine located near Tarr station, on the Southwest Pennsylvania railroad. Operated by the Southwest Coal and Coke Company. Superintendent, E. A. Upstill. Mining-boss, O. Flesher. Number of miners, forty-five men and three boys. Number of mules, seven inside and three outside. Number of day-men, including drivers, nine inside and eight outside.

There are six openings to this mine, and at time of visit men were working in four entries. Size of entry, eight feet wide by seven feet high. Rooms, ten feet high and ribs eight feet.

The ventilation is produced by natural means and exhaust steam. They have a boiler in the mine near the up-cast shaft. The outlet velocity at boiler was one hundred and thirty feet per minute; sectional area, $8' \times 7'$; volume, seven thousand two hundred and eighty cubic feet.

The in-take velocity of the air on main entry was one hundred and twenty feet per minute and the area fifty-six feet, showing a volume of six thousand seven hundred and twenty cubic feet.

American Coke Works.

Mine operated by the Southwest Coal and Coke Company. The location of the mine is near Stonerville, on the Southwest Pennsylvania railroad. Superintendent, E. A. Upstill. Mining-boss, Luther Flesher.

A drift opening. Number of coke-ovens, seventy-two. Number of miners, twenty; other persons employed, inside and outside, eight. Number of openings, two—one the main entrance and the other a shaft used for ventilation, &c. At the time visited they were sinking another air-shaft.

The workings of the mine were confined into two entries, Nos. 2 and 3, north. Size of entry, $7' \times 7'$. Rooms ten feet and ribs ten feet wide. Drainage by steam pump. Outlet velocity of air near pump station, one hundred and thirty feet per minute; size, forty-nine square feet.

Dillinger & Donnelly Mine.

This is a new mine opened near Stonerville on the south-west P. R. R. The present openings are drifts but I was informed when visiting the mine,

that the company intended to open in the near future either a shaft or slope openings in order to have the workings to conform with the natural dip of the vein, and also to be more in the center of their coal property. The works are under the superintendency of J. B. Henry. Mining-boss, Barney Moore. The entries working at the time visited were three in number. They are driven eight feet wide and about seven and a half high. The rooms are twelve feet wide and ribs eight. There are two openings to daylight, one a drift and the other an air-course driven to crop.

The works are at present ventilated by natural means, and I found a velocity of air-current when I measured the air of three hundred feet per minute entering the mine, but as natural ventilation is not certain and reliable, I advised the pit boss how to provide proper means so that he could control it and have sufficient volume when the demand of the mine would increase, &c.

Mayfield Mine.

A new mine opened and operated by W. B. Neel & Co., on adjoining lands to those of the Dillinger & Donnelly coal property. Superintendent, Braden Hurst. Mining-boss, A. H. Sanders.

Number of openings two, both of which were driven out through the crop. Number of entries four, but room workings in only two when visited.

The entries are driven eight feet wide and seven feet high. Rooms ten feet wide and ribs eight. They had fifty-five coke-ovens built at this mine and in blast at the time visited. Employing sixteen miners, two boys and three others inside the mine, with sixteen persons employed outside at the ovens.

The ventilation of the mine is produced by natural means and at the time of my examination was defective. The drainage was by means of a steam-pump which was placed at some distance in the mine. The steam conveyed in pipes along the main entry from a boiler near the mouth of the pit. This arrangement retarded the ventilation and should not have been adopted. Very little change in the order of things when the mine was opened would have been of important improvement to the mine. Mr. Hurst informed me that the present system of drainage was only temporary at first and should be soon changed. I also gave him instruction how to improve the ventilation. Part of the mine is worked on the double-entry plan, and with very little attention the ventilation can be put in good condition and continued so at very small expense.

Union Mine.

Mine operated by McClure & Co. They have at present seventy-one coke-ovens. Superintendent, J. B. Henry. Mining-boss, Albert Peters. A drift opening and ventilated by natural means. It has four openings with the roof broken to surface in many places.

The workings when visited were confined into three entries. Size of

entry, $8' \times 7'$. Rooms twelve feet wide and ribs eight feet. Number of miners employed, eighteen men; number of mules, three. Four day-men employed inside at driving and repairs and one outside.

Rising Sun.

This mine is a drift opening. Operated by McClure & Rafferty. Superintendent, J. B. Henry. Outside manager, Joseph Read. Mining-boss, Andrew Neish. Number of openings, three—two drift openings and one air-shaft. Men were working at time of my visit in three entries. Size of entry, $7\frac{1}{2}' \times 7\frac{1}{2}'$. Rooms thirteen feet and ribs nine feet. Number of miners, twenty-seven men and one boy; number of day-men, ten—seven inside and three outside. They employ six mules—four for inside and two outside. Velocity of the air measured by my anemometer, three hundred and fifty feet; section area, $8' \times 6\frac{1}{2}' = 52'$. Ventilation by natural means, and subject to changes in the temperature of the atmosphere.

Bessemer Mine.

This mine joins the Rising Sun mine, and there is an opening from one into the other. Superintendent, T. M. McClain. Mining-boss, Adam Whitehead. The number of openings to this mine are three, one into the Rising Sun mine and two drift openings; number of entries, six. They were only working in five at time of my visit. Size of entry, $8\frac{1}{2}' \times 7'$. Rooms fourteen feet wide and ribs ten feet. Number of miners, fifty men and two boys; number of day-men and boys employed inside and outside, twelve. The ventilation produced by furnace. At time of visit I measured it in seven places with satisfactory results. They have one hundred and seventy coke-ovens. The mine all through was in good condition, the roads well kept, the drainage taken care of. All the break-throughs except those in use are well bratticed.

West Overton Mine.

Mine a drift opening. Operated by A. C. Overholt & Co. Superintendent, B. F. Overholt. Mining-boss, John Garms. There are four entries working in this mine. Size of entry, $8' \times 7\frac{1}{2}'$. Rooms twelve feet wide. Number of miners, thirty men and six boys; number working by the day, seven; number of mules employed, four inside and one outside. Thickness of coal, eight and one half feet. Number of coke-ovens, one hundred and ten. Ventilation natural. They have three openings. Air measurement at outlet showed a velocity of one hundred and eighty feet per minute; section area, $6' \times 7' = 42'$.

Standard Mines.

These mines are slope and shaft openings located near Mount Pleasant, Westmoreland county, formerly owned and operated by Mr. A. A. Hutchinson, with the superintendency of the underground workings in charge of Mr. William Wileox, late mine inspector of the first district. The mine at present has been sold by Mr. Hutchinson to Messrs. H. C. Frick & Co., and

at my last visit October 4, the following officers were in charge: Superintendent, Robert Ramsay. Mining-boss, George Dawson.

The mines are worked on the double-entry system, the parallel entries are fifty feet apart. Rooms when turned are driven thirty feet before widening in order to allow sufficient support for the entries. The ventilation is produced by a Champion ventilator Fan, and the underground workings as regards drainage and ventilation are in fair condition. The following air-measurements were taken at my visits: Velocity of air current near head of No. 1, face, 1st range—one hundred and twenty feet per minute, sec. area $7 \times 7\frac{1}{2} = 52\frac{1}{2}$. Velocity near face of second range—four hundred and ten feet per minute sec. area $8 \times 7 = 56$ square feet. Outlet air-current on slope velocity=380 feet per minute. Area one hundred square feet. Volume thirty-eight thousand cubic feet. At the time visited there was only part of the mine operated, and only one hundred and thirty miners including boys employed, but since then I have been informed that the out-put has been increased, and that the mine will soon be to its full capacity, and that additional openings are intended to be made to enlarge its shipment.

Southside Mine.

Mine operated by the Westmoreland Coal Company. Superintendent, F. Z. Schellenberg. The underground department is under the management of Samuel Wood and James Thompson. The workings are very extensive, giving employment to over three hundred miners, including boys, half turns, &c. The main roads are in good condition, and the ventilation is produced by a large furnace. There are preparations in progress to sink another shaft for the purpose of continuing the proper drainage of the mine.

The present parts in work are in four divisions. In the Swamp-road division they are working in upper 8th, 9th, 10th, $10\frac{1}{2}$, 11th, and 12th, all parallel butt entries. In the main road division, in the lower, 8th, 10th, and 11th. In Dip-road division in the 7th dip parallels, in the 3 and 4 butts, in 5 and 6 and 7 butts and in the 3rd dip and par. entry. In the drain-road division in 11th and 12th dip. In all these entries men were working at the time of my visit, 23 cross and 4 main entries. The nature of the workings in these various entries were as follows: In some entries driving, in some, room workings, in others, rooms and rib workings, and in others, rib and stumps. When the stumps are drawn out the work is finished and that section is abandoned.

I was much pleased at the general condition of this mine, and at the care taken to supply those parts using timber with sufficient number of posts, &c., to meet their wants as the work progresses. I was informed by the mining-boss, Mr. Thompson, and the outside foreman, that each place where timber is required is examined every day and note made of the number of posts, &c., needed. The fireman visits every room, &c., once every day and takes these notes as he goes around. In the evening when he comes

out of the mine he takes his note-book to the tippie-house and copies on a blackboard kept there for that purpose the name and number of those places in need of posts, &c., also, what number of each kind to send there.

The outside foreman said that the first part of his duty every morning was to examine the blackboard and see that the materials ordered were sent in by the first trips. He also said that since adopting this plan he noticed a great saving in the amount of timber used, and that the amount used at present was not much over one half what they sent in before, because then they would send timber often to places not in need, and would leave others in need without any. The person going around would direct the miner where to stand his posts and prevent others from putting more posts up than the nature of the roof required, which, in the opinion of those in charge, accounted for the saving. It may also be said, that when a prop is put up as soon as it is needed, it often saves two or three, if the top is allowed to give before it is attended to, and in the end not as safe.

Westmoreland Shaft.

This mine is owned and operated by the Westmoreland Coal Company. Superintendent, F. Z. Schellenberg. Mining-boss, Charles Walters. It has three openings by shafts and one by slope. Number of miners employed when visited on the 31st of October, two hundred and twenty-five men and nine boys. Number of persons employed by the day, thirty-five inside and nineteen outside. Number of entries working, twenty-six. Size of entry, mains, $8' \times 6'$, and butts, $7\frac{1}{2}' \times 6'$. The workings are in three sections: The south mains, north mains, and the upper mains. The ventilation of this mine is produced by a fan twelve feet in diameter. Air measurements taken in the upper mains showed a velocity of one hundred and fifty-five feet per minute, section area, fifty square feet. There are in use in the mine fourteen of the Harrison coal-cutting machines—there is only a part of the mine where they are in use. The persons contracting to do the machine mining are allowed three rooms for each machine; by their use they do the under-mining, and I was also told that they were used in taking up the bottom coal; the machines are worked by compressed air.

The drainage of the mine is affected by a powerful steam pump, a drawing of which accompanies this report with a full description explaining its different parts, the size of the steam cylinder, length of stroke, depth of the shaft, and the amount of water lifted, &c., the whole of which has been furnished me by Mr. F. Z. Schellenberg, superintendent, and Mr. Lewis Stockett, engineer of the company, and placed in this report for the benefit of parties necessitated to use steam power for the drainage of their mines.

Westmoreland Shaft No. 1.

During the past year an extensive improvement has been made at the Westmoreland Coal Company's shaft No. 1. As the workings increased, and consequently the amount of water to be drained, it was found necessary to have some more reliable and larger means of pumping than existed, and



20 INCH CORNISH PUMP
WITH TWO 10 INCH AND ONE 20 INCH
WESTMORELAND SHAFT



which would also allow of bringing the water down from the upper shaft and doing the pumping all at one place.

The improvement consists of a twenty-inch plunger pump, ten-foot stroke, connected directly to and worked by a forty-inch steam cylinder, the whole constituting what is known as the "Cornish pump." The accompanying drawing and description have been furnished by Lewis Stockett, engineer of the company.

One compartment of the shaft, 6×9 feet, is used as an air and pump-way, and is in depth, from the foundation of engine to foundation of pump, one hundred and eighty-five feet, giving a vertical lift of one hundred and seventy-two feet to raise the water, which discharges thirteen feet under the engine. The sump is twenty-three feet deep below foundation of pump, which necessitated the present arrangement of placing the valves and their chambers (clacks and clack pieces) alongside of working-barrel instead of directly in line as is usual.

The engine is supported upon heavy cast-iron girders, which span the opening and are securely bolted to and rest upon a heavy foundation of stone. It consists of a vertical cylinder, 40"×120", with piston, piston-rod, crosshead, and guides. Steam is used but one way in the cylinder, that is to lift the rods, and is controlled by inlet and exhaust valves, which are operated by tappets on a plug rod worked directly from the engine, giving a positive valve motion. These valves are further controlled and operated by a cataract movement, by which the speed of the pump is regulated.

The pump, consisting of plunger, working barrel, valves, and valve chambers, is supported upon oak timbers twenty feet square, which bridge over the sump and rest upon the rock which underlies the vein. The plunger is connected directly with the crosshead of the engine by a line of twelve inches square Georgia yellow pine rods, in sections of thirty feet, bolted together by splice-plates and bolts. The water valves are of the annular pattern, made of gun metal and faced with leather, working on a seating of the same metal. The suction pump is twenty inches in diameter, and the discharge or column pipe eighteen inches, cast in sections of twelve feet.

The operation of the pump is very simple and reliable. Upon opening the screw valve, steam is admitted from the boilers into the lower portion of the cylinder, raising the piston and with it the rods and plunger, creating a vacuum in the working barrel, which water from the sump, forced by atmospheric pressure, raising through the suction pipe, lifts the lower valve and fills up. The lower tappet on plug rod shuts off the steam, and through the cataract the exhaust valve opens, and the steam escapes through a proper exhaust pipe to the air. The piston, rods, and plunger, of their own weight, descend to the water, shutting the lower valve, and forcing it through the upper valve into the column pipe above. A few strokes soon fill this pipe, and at every succeeding stroke it discharges an amount at the delivery equal in volume to the size of the plunger, which

in this pump is thirty-seven thousand six hundred and ninety-nine cubic inches or one hundred and sixty-two and a half gallons. Running at from one to six strokes per minute, this gives from nine thousand seven hundred and fifty to fifty-eight thousand five hundred gallons per hour, and two hundred and thirty-four thousand to one million four hundred and four thousand gallons per day of twenty-four hours. Upon the descent of the piston, the upper tappet on plug rod shuts the exhaust valve, the cataract opens the steam valve and the operation is repeated. Heavy wooden stops on the line of rods prevent the pump from exceeding its stroke either upwards or downwards.

What is claimed for these pumps is their great economy in the use of steam, their reliability, their small cost for repairs, and the facility with which they can be run.

Larimer Mines.

Mine located near Larimer station, on the Pennsylvania railroad. Owned and operated by the Westmoreland Coal Company. Superintendent, F. Z. Schellenberg. Mining-boss, Arthur Fowler. Number of miners, two hundred and thirty men and twenty boys. Number of persons employed by the day, twelve inside and nineteen outside. The coal from these mines is taken over two incline planes. That from the Byerly main is taken over one plane and the Skelly Hill openings over the other. The ventilation of the mine is moved by a fan ten feet in diameter. The fan is driven by hot-air engine, manufactured by Sherrill Roper Air Engine Company, New York. I was informed by the engineer in charge that about three bushels of coke were sufficient to run the engine and fan for twelve hours. This is the only engine of this kind in the district. The air is heated and by its expansion acquires sufficient power to keep the engine and fan in motion. The speed is regulated by the engineer by opening and closing certain valves, &c.

When visiting this mine on the 1st of November the following air measurements were taken: Between 8 and 9 butt—velocity, one hundred and twenty feet per minute; area, $7\frac{1}{2}' \times 5\frac{1}{2}'$. Between 10 and 11 butt—velocity, two hundred and thirty feet per minute; area, $8' \times 5\frac{1}{2}' = 44$ square feet. Between 6 and 7 butt—velocity, one hundred and twenty feet per minute; area, thirty-six square feet. The fan is used as blower. The velocity of the air at inlet was seven hundred and fifty feet per minute; area, forty square feet.

The Skelly opening is ventilated by natural means. When measured showed a velocity in the inlet current of one hundred and fifty feet per minute; area, forty square feet. There is an opening from this part of the mine to the other, and when the natural current is not sufficient a part of the fan current is brought through.

Fatal Accidents Reported.

ACCIDENT No. 1.—William Bradstock, aged sixteen years, was fatally injured by a fall of slate, while at work in the Ocean mines on the morning

of the 6th of January. On the investigation, I found that young Bradstock was working at the time of the accident in company with Alexander Buckam, another young man, in room No. 17, in No. 6 entry in the new tunnel. Buckam was "bearing in," and Bradstock knocking some coal down and loading a wagon. The piece of slate that fell on him measured six feet six inches in length, two feet six inches across the widest part, and about eleven inches thick.

John Osborne and David Thomas stated that they helped to get the slate removed and get him out. His right foot was badly smashed from the ankle down. His body was also bruised. The accident occurred in the morning, and he died the same evening.

ACCIDENT No. 2.—At the Penn Gas No. 4 mine, on the 31st of January, at about four o'clock, P. M., an accident occurred resulting in the death of B. F. Painter. He and Edward Perry were working in room No. 9, in No. 16 entry. This was a double room, and each party had his own road. At the time of the accident they were loading a wagon apiece—Painter's wagon on the lower road, and Perry's on the upper—when a piece of slate three feet six inches long, by three feet wide and ten inches thick, fell in Painter's part of the room and caught him. His body was severely bruised and his left leg broken, causing his death in about two hours after being taken home.

ACCIDENT No. 10.—William Muir, a miner, working in the Youghiogeny Valley mine, was killed by a fall of slate. This accident occurred on Saturday morning, March 24, in room No. 12, in No. 3 entry. The mine had been idle a few days prior to the accident, and when it started Muir went to his work, and without any apprehension of danger, went in a thoughtless manner under the slate without examining it, and was caught.

ACCIDENT No. 12.—On the 22d of March, William Smith, seventeen years of age, a driver at the St. Clair mine, was fatally injured by being squeezed between coal wagons and rib when bringing his trip out. Smith and another young man were both hauling their full trips out of the mine when this accident happened. Young Smith's trip was in the rear and a short distance behind the other. When the other driver's trip had reached a certain place where there was a feed-box on the side of the track, his mule turned towards the box and resisted all the attempts made to get him to continue his trip out. Smith at this time was coming, riding on the bumper of his front wagon, when he was signaled to stop his trip, and it is supposed that he made an effort to jump off and got in between the rib and the wagons. The track was close to this side of the entry; had he jumped the other side of his wagons, he would have had ample room to escape. When found, he was jammed in between the rib and the first and second wagon and so badly injured that he died on the 24th.

ACCIDENT No. 18.—Paul Muller, a young man twenty-one years a native of Germany, received injuries in the Penny mine, on Young

river, on the 26th of April, by falling slate while at his work. His injuries were so severe that they proved fatal on the 28th.

ACCIDENT No. 21.—Lewis McCall, a single man and boss driver in the United shaft, was killed on the 10th of May by being caught under by a descending cage in the shaft.

He was trying to pass from one side of the shaft to the other by crossing under the cage. Francis Martin, the cager, stated at the investigation that McCall had been warned not to pass under the cages but to take the other way. There is no sump at the bottom of shaft, and he was in the habit of sometimes crossing straight from one side to the other, which he intended to do when he was caught, but the cage was near the bottom and before Martin had time to call on him he saw the cage on top of him.

His body was badly bruised, his breast-bone and ribs broken, causing his death as stated at the time of the inquest by a verdict of "accidental death through his own carelessness."

ACCIDENT No. 22.—James Keffer, a miner working in room No. 19, "Big Parting," in Horner and Roberts mine, drawing rib, was knocked by a piece of falling slate against a post while loading his wagon on the morning of the 14th of May, about half past six o'clock, with such a force that in falling against the post his skull was fractured.

When his fellow-miners came to his assistance he was found lying with his head against the post and his feet touching the slate, but there was none of his body under the slate, and in the opinion of Charles Wilson, Daniel Bowers, John Phillips, and Orin Hughes, the parties that worked near and came to help him out, it was the force with which he was knocked against the post that caused his death. Hughes heard the slate falling and called on Keffer but received no answer; then he ran into Keffer's place, which he thought did not take him over three minutes, when he found him lying dead.

ACCIDENT No. 25.—Jonathan W. Davis, a driver in the employ of W. H. Brown Sons, at the Saltsburg mine on the Monongahela river, was fatally injured while at his work on the morning of June 7th at about half past six o'clock, by a fall of roof coal while turning his mule. He died at nine, A. M., of the same day.

Davis had been in the employ of this company for a number of years, and was very highly spoken of by all that knew him. David G. Delo, a fellow-driver, stated that he was within twenty-five yards of Davis when the roof fell, and that there had not been but a few minutes since he was standing in the very place where Davis was caught and that he considered it perfectly safe. Others testified, both at the investigation held in the mine and at the coroner's inquest, to the same regarding the safety of the place. Accidents of this nature should impress us of the necessity of thorough and frequent examinations of all the hauling and traveling-ways.

ACCIDENT No. 27.—John Watchborn, a miner, fifty-two years of age, working in the Old Eagle mine, on the Monongahela river, was killed by slate falling on him in his room on the 15th of June.

James Laight, working in the next room, was the first coming to his aid, and found him all covered by the slate except his head, his shoulder smashed and his neck broken. He was dead when found. Benjamin Andrews, working in room No. 5, and James Blower, working in room No. 13, were in and helped to take him out. There was a large quantity of slate fell. One piece measuring six feet long and four feet six inches wide, and another piece five feet six inches long and three feet two inches wide. In the estimation of those present at the investigation, the whole would weigh over two tons. A coroner's inquest was held on the 16th, and a verdict of accidental death rendered.

ACCIDENT No. 30.—This accident occurred on the 6th of July, in room No. 28, in No. 7 entry, in the M. Graver mine, resulting in the death of Severano Mogel, a single man, thirty-one years of age. The accident is supposed to have taken place about four o'clock in the afternoon, but not discovered until seven o'clock the same evening, at which time Joseph Bracco, who worked in room No. 45, and Gabell Favere, a brother-in-law of the deceased, went into the mine in search of him. They found him laying with his head and body under the slate. His body was cold, and in their opinion he must have been dead for some time. Simon Deberl was working in the same room, but had gone home about two o'clock, P. M. When he left, Mogel was knocking some coal down under where the slate was, but he did not think at that time that there was any danger of the slate falling. He also stated at the investigation that he had often warned Mogel to watch the slate, and that he thought that the accident was the result of carelessness.

ACCIDENT No. 33.—Charles Kaylor, a young man about seventeen years of age, a son of John Kaylor, was killed by a fall of slate in the Coulter & Huff mine, east of Greensburg, on the Pennsylvania railroad, on the 25th of July. Young Kaylor and his father were working together in one of the entries called the Straight parallels, and C. J. McKelveen in the other. A cut-through had been made by the Kaylor's from their entry into McKelveen's entry, which was near the face of both entries. The slate was not taken down in the face of the McKelveen entry, and the evening before the accident he had been trying to get it down, but had failed to get only a part of it. The balance, which was the largest portion of it, was left hanging over night. In the morning he had an empty wagon pushed to the head of the entry, with the intention, as he stated, to fill it with coal that he had lying under the slate, as soon as he would prop the slate. Young Kaylor and his father had gone to another entry to help the driver to get a car on the track. The father thinking that one of them was sufficient to help getting the wagon on, told his son to go to his work. The son obeyed, and the shortest way to go was through McKelveen's entry and the cut-through, and when he was passing the empty wagon the slate dropped. A part of it rested on the wagon, and the other part caught him, killing him instantly. In the estimation of the parties present at my investigation, the quantity of slate that fell would weigh from three to four tons.

ACCIDENT No. 36.—Joseph Jun was fatally injured at the Shaner mine, on the 2d of August, at about three, P. M., and died at ten, P. M. He was a married man, and had a wife and four children. At the time of the accident, he was working in "B" entry, and Peter Fritz was working with him. The slate that fell on him was about three feet long and about the same in width. His body was severely bruised. His collar-bone knocked loose, his thigh broken, and several of his ribs badly crushed.

ACCIDENT No. 37.—David McKenna, an old miner on the Youghiogheny river, was fatally injured by a fall of slate in the Eureka mine, on the 9th of August, at about seven o'clock, A. M. He was working in room No. 14, in No. 3 entry. The slate that fell on him measured seven feet eleven inches long, three feet ten inches wide, and one foot thick. He was crushed in the abdomen, and otherwise bruised. At the investigation after his death, the following persons, Hiram Crise, Thomas Marshall, Philip Kern and Jeremiah Abbott who were working near him, and were in his room, after the accident assisting to take him out, stated that he had sufficient timber in his room, and that he had one post under the slate. McKenna told Thomas Marshall that he had one post under the slate, but that he had put it too near to one end, and that the weight of the other end shoved it out. He was dying when he was taken from under the slate, and was not able to speak only a few words while Thomas Marshall held him in his arms, before he was put in the car to be taken out. In the opinion of all present, his death was considered purely accidental.

TABLE I—Showing location of Collieries in the Second Bituminous Mine District.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Alpsville,	Thomas Hackett & Co.,	Allegheny,	J. F. Anderson,	Duncan, Allegheny county, Pa.
American,	South-West Coal and Coke Company,	Westmoreland,	E. A. Upstill,	Tarr, Westmoreland county, Pa.
Allee,	J. M. Schoonmaker,	do.	Charles McSweeney,	Mt. Pleasant, Westmoreland county, Pa.
Amieville,	N. J. Bigley,	do.	Hugh McGinn,	Yonterville, do.
Armstrong,	B. F. Rafferty & Co.,	do.	Alex. Moreland,	Youghioghan, do.
Arnold,	Arnold Coal Company,	do.	William Beans,	Burrell, do.
Bagdad,	Bagdad Coal Company,	do.	Alfred Hicks,	Leechburg, Armstrong county, Pa.
Bessemer,	do.	do.	F. W. McClain,	Mt. Pleasant, Westmoreland county, Pa.
Buckeye,	A. C. Cochran, Ex.,	do.	A. C. Cochran,	Stauffer, do.
Coulter & Huff,	Coulter & Huff,	do.	A. W. Jones,	Greensburg, do.
Duquesne,	N. Y. and C. G. Company,	Allegheny,	J. W. Doak,	White Ash, Allegheny county, Pa.
Dillinger & Tarr,	Dillinger & Tarr,	Westmoreland,	P. Tarr,	Tarr, Westmoreland county, Pa.
Dillinger & Donnelly,	Dillinger & Donnelly,	do.	J. B. Henry,	Scottsdale, Westmoreland county, Pa.
Enterprise,	Dillinger & Rafferty,	do.	W. H. Shannon,	do.
Eureka,	Fox, Kifer & Co.,	do.	W. A. Kifer,	do.
Foster,	Westmoreland Coal Company,	do.	F. Z. Schellenberg,	Irwin Station, do.
Fairbank,	Salsburg Coal Company,	do.	D. S. Robinson,	Salisbury, Indiana county, Pa.
Greensburg,	Greensburg Coal Company,	do.	A. W. Jones,	Greensburg, Westmoreland county, Pa.
Hampton,	Hampton Coal Company,	Allegheny,	Major Lawson,	Wilksburg, Allegheny county, Pa.
Hazlett No. 1, (shaft,)	Boyle & Rafferty,	Westmoreland,	James Devlin,	Stauffer, Westmoreland county, Pa.
Hazlett No. 2, (slope,)	do.	do.	do.	do.
Hecla,	The Hecla Coal and Coke Company,	do.	D. W. Strickler,	South-West, do.
Isabella,	Isabella Furnace Company,	do.	W. C. Crist,	Cokeville, do.
Keystone No. 1,	W. H. Brown Sons,	Allegheny,	W. S. Brown,	Port Perry, Allegheny county, Pa.
Keystone No. 2,	do.	do.	do.	do.
Loyal Hanna,	Loyal Hanna Coal and Coke Company,	Westmoreland,	Wm. Dovey,	Latrobe, Westmoreland county, Pa.
Leechburg No. 1,	D. B. Ashbaugh,	do.	D. B. Ashbaugh,	Leechburg, Armstrong county, Pa.
Leechburg No. 2,	do.	do.	do.	do.
Latrobe Coal Works,	Latrobe Coal Company,	do.	D. W. Jones,	Latrobe, Westmoreland county, Pa.
Larimer No. 3,	Westmoreland Coal Company,	do.	F. Z. Schellenberg,	Irwin Station, Westmoreland county, Pa.
Larimer, (Skelly Hill,)	do.	do.	do.	do.
Lucesco,	Leechburg Coal and Coke Company,	do.	W. H. Wray,	Leechburg, Armstrong county, Pa.
Mullen,	Mullen & Strickler,	do.	William H. Strickler,	Mount Pleasant, Westmoreland county, Pa.
Millwood,	Millwood Coal and Coke Company,	do.	A. Ford,	Millwood Station, do.
Monastery,	H. C. Frick & Co.,	do.	Robert Ramsay,	Latrobe, do.
Morewood "A,"	Morewood Coke Company,	do.	Morris Ramsay,	Mount Pleasant, do.
Morewood "B,"	do.	do.	do.	do.
M. Graver,	M. Graver & Co.,	do.	William Fisher,	Verona, Allegheny county, Pa.
M. M. and M. Mine,	M. M. & M. Company,	do.	R. S. Jameson,	Greensburg, Westmoreland county, Pa.
Markle,	do.	do.	Daniel Cochran,	West Newton, do.
M. Saxman,	M. Saxman, Junior, & Co.,	do.	F. Kiernan,	Latrobe, do.
Mill Bank,	Lautman & Co.,	do.	J. W. Osborne,	Apollo, Armstrong county, Pa.
Ocean,	Yough River Coal Company,	do.	J. F. Hosack,	Scott Haven, Westmoreland county, Pa.
Oscola,	Oscola Coal Company,	Allegheny,	F. H. Dewees,	McKeesport, Allegheny county, Pa.
Oak Hill No. 3,	N. Y. and C. Gas Coal Company,	do.	John McIntosh,	Turtle Creek, do.

TABLE I—Continued.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Oak Hill No. 4.	N. Y. and C. Gas Coal Company,	Allegheny,	John McIntosh,	Turtle Creek, Allegheny county, Pa.
Penn Gas, No. 1 Shaft,	Penn Gas Coal Company,	Westmoreland,	William Willson,	Irwin Station, Westmoreland county, Pa.
Penn Gas, No. 2 Shaft,	do.	do.	do.	do.
Penn Gas, No. 4 Mine,	do.	do.	do.	do.
Penn Gas, Coal Run,	do.	do.	do.	do.
Penn Gas, No. 3 Shaft,	do.	do.	do.	do.
Penn Gas, (Penn Station,)	do.	do.	do.	do.
Port Royal,	Port Royal Coal and Coke Company,	do.	J. M. Owens,	Fitz Henry,
Plum Creek, Nos. 1 and 2,	N. Y. and C. Gas Coal Company,	Allegheny,	J. W. Doak,	Negley, Allegheny county, Pa.
Pittsburgh & Kiskiminetas,	Pittsburgh and Kiskiminetas Coal Company,	Westmoreland,	Alfred Hicks,	Leechburg, Armstrong county, Pa.
Rising Sun,	McClure & Rafferty,	do.	J. B. Henry,	Scottsdale, Westmoreland county, Pa.
Ridge View,	Ridge View Coal and Coke Company,	do.	D. C. George,	Latrobe,
Roaring Run No. 1,	Westmoreland Coal and Coke Company,	do.	R. A. Hope,	Greensburg,
Roaring Run No. 2,	do.	do.	do.	do.
Southside,	Westmoreland Coal Company,	do.	F. Z. Schellenberg,	Irwin Station,
Spring Hill,	do.	Allegheny,	do.	do.
Sandy Creek, 1 and 2,	N. Y. and C. Gas Coal Company,	do.	J. W. Doak,	White Ash, Allegheny county, Pa.
South-West,	South-West Coal and Coke Company,	Westmoreland,	E. A. Upstill,	Tarr,
St. Clair,	St. Clair Coal and Coke Company,	do.	M. A. Preston,	Latrobe,
Smithton No. 1,	B. F. Rafferty & Co.,	do.	Robert L. Henderson,	Smithton,
Smithton No. 2,	do.	do.	do.	do.
Standard Shaft,	H. C. Frick & Co.,	do.	Robert Ramsay,	Mt. Pleasant,
Shaner,	do.	do.	do.	do.
Star,	B. F. Rafferty & Co.,	do.	Alex. Moreland,	Youghioghan,
Union,	A. C. Cochran, Ex.,	do.	A. C. Cochran,	Stauffer,
United,	McClure & Co.,	do.	J. B. Henry,	Scottsdale,
Westmoreland Shaft,	United Coal and Coke Company,	do.	F. Z. Schellenberg,	Greensburg,
West Newton,	Westmoreland Coal Company,	do.	do.	Irwin Station,
West Overton,	West Newton Mine,	do.	B. F. Osborne,	West Newton,
Welman,	A. C. Overholt & Co.,	do.	B. F. Overholt,	West Overton,
Yough Slope,	Jacob Welman,	Allegheny,	Jacob Welman,	Wilkinsburg, Allegheny county, Pa.
Yough Valley, (Blythe,)	B. F. Rafferty & Co.,	Westmoreland,	Robert Latimore,	West Newton, Westmoreland county, Pa.
	Y. and A. Coal Company,	do.	John Blythe,	do.

TABLE II.—A statement showing Characteristics, Number of Employes, Production, etc., of the respective Collieries in the Second Bituminous Mine District, for the year ending October 31, 1883.

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi- Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners— men.	Number of miners— boys.	Other employes.	Total employes.	Number of mules in- side.	Number of mules out- side.	Number of loco- mives.	Total production of coal in tons.
American,	Bituminous,	Drift,	1	1	...	20	25	4	3	33	3	1	..	8,954
Arnold,	do.	Drift,	..	..	..	..	56	4	10	70	5	1	..	37,244
Aipsville,	do.	Drift,	..	..	..	..	147	12	17	175	11	..	..	14,607
Amieville,	do.	Drift,	..	..	..	..	90	8	15	113	7	4	..	18,810
Alice,	do.	Slope,	2	1	60	2	72	5	18	95	7	..	..	2,714
Allegheny,	do.	Slope,	1	1	..	..	30	6	36	72	2	..	..	17,694
Baker,	do.	Drift,	..	..	..	..	96	19	7	122	8	1	..	..
Barnes,	do.	Drift,	2	1	30	2	114	31	145	177	17	..	..	13,188
Bellevue,	do.	Drift,	1	..	..	1	49	3	7	59	6	..	..	1,915
Bagdad,	do.	Drift,	1	..	4	1	35	5	6	46	2	..	..	25,308
Blythe,	do.	Drift,	..	..	..	..	114	9	16	139	6	1	..	10,000
Bessemer,	do.	Drift,	..	..	..	..	35	6	20	61	9	2	..	..
Buckeye,	do.	Drift,	..	..	..	..	34	2	10	46	5	..	..	107,535
Cornell & Huff,	do.	Slope,	3	2	50	3	106	2	32	141	12	2	..	52,289
Connell & Werling,	do.	Drift,	2	3	..	4	190	13	35	238	9	..	..	200
Davidson,	do.	Drift,	..	..	..	..	8	2	3	13	2	..	..	36,121
Duquesne,	do.	Drift,	..	..	..	..	133	34	15	182	9	14	..	..
Dilling & Donnelly,	do.	Drift,	..	..	..	..	23	3	7	38	4	3	..	23,050
Enterprise,	do.	Drift,	..	..	..	..	14	1	4	19	4	..	..	4,307
Eureka,	do.	Drift,	..	..	..	..	66	7	8	81	3	2	..	20,640
E. & V.,	do.	Drift,	..	..	..	..	81	5	14	100	11	..	..	30,385
Fairbank,	do.	Drift,	..	..	..	..	115	3	40	158	9	1	..	3,767
Gosford,	do.	Drift,	..	..	..	..	29	3	3	35	2	1	..	4,351
Glenn,	do.	Drift,	..	..	..	..	17	2	4	23	2	..	..	..
Hampton,	do.	Drift,	..	..	..	..	152	22	24	198	17	1	..	..
Hazlett,	do.	Slope,	..	..	..	..	70	5	112	187	12	7	..	36,282
Hedra,	do.	Shaft,	2	2	100	4	40	3	13	58	4	..	..	2,660
Holmes,	do.	Drift,	..	..	..	..	10	3	2	15	1	..	..	..
Hornor & Roberts,	do.	Slope,	3	4	..	2	213	13	17	243	10	..	..	4,700
Iron City,	do.	Drift,	2	1	40	2	54	8	9	71	3	3	..	35,903
Isabella,	do.	Slope,	1	1	..	2	67	6	15	88	10	..	..	38,072
Kittanning,	do.	Drift,	..	..	..	1	47	5	1	53	4	2	..	..
Lovedale,	do.	Slope,	2	2	..	3	133	15	16	184	12	..	..	..
Loyalhanna,	do.	Shaft,	3	4	158	7	118	9	97	224	13	3	..	108,173

[illegible]

TABLE IV.--VENTILATION OF COLLIERIES--Continued.

NAME OF COLLIERY.	APRIL.								MAY.								JUNE.							
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Velocity of air current per minute at outlet.																
Alice,	240	17,280	280	15,680	275	15,400	215	15,480	210	11,760	260	14,560	230	16,560	190	10,640	270	15,120						
Allegheny,	240	7,200	180	2,800	320	6,720	100	4,800	120	5,660	122	3,680	88	3,520	240	13,040	111	3,380						
Amieville,	180	8,640	140	6,720	140	6,720	100	4,800	120	5,660	122	3,680	88	3,520	240	13,040	111	3,380						
Arnold,	170	5,100	140	6,720	140	6,720	100	4,800	120	5,660	122	3,680	88	3,520	240	13,040	111	3,380						
Barnes, (Mch. Rep.,)	126	15,498	140	4,900	164	4,920	143	15,867	92	15,867	133	15,990	93	15,990	140	5,760	359	21,420						
Baker,	300	10,800	230	7,500	300	12,000	30	10,800	250	7,500	120	9,600	260	11,900	95	5,700	250	11,000						
Bagdad,	255	11,730	160	8,640	275	13,475	248	11,405	125	6,375	235	11,025	180	8,640	119	5,345	225	10,456						
Bellevue,	200	3,200	142	7,910			133	6,182	135	6,750	620	22,820	430	24,080	85	3,590	625	22,500						
Blythe,	430	24,080	115	3,461	620	22,820	430	24,080																
Coulter & Huff,	150	4,800			375	7,500	150	7,500	110	4,400	409	24,540	135	6,885	140	5,760	359	21,420						
Davidson,	130	13,000	92	5,488	355	21,650	285	13,965	85	4,165	101	5,250	274	13,426	90	4,500	90	3,015						
Enterprise,	265	12,985	112	3,380			100	4,500	90	3,690	100	3,350	120	4,680	86	3,734	150	6,600						
Etna and Vesuvius,	150	6,750	111	5,772	100	4,500	100	4,500	75	3,300	130	4,400	150	6,600	50	2,000	150	6,600						
Gosford,	120	5,280	100	4,400	120	5,280	100	4,400																
Glenn,			75	3,300																				
Hampton,	355	16,080			375	13,775	300	12,600			310	12,400	240	11,760	200	8,000	230	11,240						
Horner & Roberts,	145	5,800			240	8,160	125	5,000			235	7,990	115	4,600			220	7,480						

TABLE IV.—VENTILATION OF COLLIERIES—Continued.

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.
Hulmes,	300	8,100	220	5,400	400	10,800	300	8,100	200	5,400	400	12,465	250	6,750	150	4,725	350	5,600
Heda,							315	15,435	132	8,232	277	12,465	210	14,210	210	10,710	260	15,600
Iron City,	175	8,778	20	2,065	100	8,775			125	7,000					230	9,840		
Isabella,									160									
Kittanning,	70	3,360	60	2,880	70	3,360							65	5,200			80	6,400
Larimer, No. 3,		7,661		7,244		11,500		5,405						6,674		8,508		5,195
Leechburg,	220	10,560	300	14,400	370	18,000	320	15,360	270	12,960	290	17,400	220	10,730	130	6,370		9,800
Loyalhanna,	200	9,800	115	5,635	140	6,860	200	9,800	50	2,450	170	8,330	220	10,730			200	9,800
Love,	105	8,085			280	8,500	125	9,625			100	8,000	120	9,240			320	4,000
Love,	100	4,200	200	8,000	140	11,200	75	3,150	115	4,025	100	8,000	95	4,650			120	9,600
Love,	265	10,865	200	8,000	255	10,200	280	11,200	135	5,400	245	14,000						
Love,	318	13,920	100	4,000	340	13,600	245	9,800	100	4,000								
Latrobe Coal Works,	100	4,900	80	3,920	90	6,480	211	11,816	82	4,592	201	11,256	90	4,410	70	3,430	100	7,200
Morewood, "A," Shaft,	256	14,336	70	3,920	222	12,432			92	4,032			207	11,592	71	4,180	206	11,536
Morewood, "B," Shaft,	188	10,528	75	4,020	133	7,448	213	11,923	70	5,040	207	11,592			78	4,308	176	9,856
Morewood, "B," Shaft,			83	4,928					88	4,648			210	11,760	117	6,552		
Morewood, "B," Shaft,			63	3,528					73	4,088					113	6,328		
Morewood, "B," Shaft,			76	3,920											82	4,592		
M. Graver,	205	9,305			200	9,000	205	9,225	205	9,225	205	9,225	170	7,650	150	9,000	180	8,100
M. N. & M.,							370	16,800	150	9,000	250	140,000	250	14,000	150	9,000	200	12,000
M. Saxman,	140	5,560	150	6,200	190	7,990	200	8,400	220	9,240	190	7,980	150	6,300	140	5,880	180	7,560
Millwood,	360	18,000	60	6,000	340	17,000	340	17,000	60	5,800	280	11,200	100	3,850	700	4,200	100	4,550
Mausfield,	100	3,850	600	3,600	100	4,550	100	3,850	700	4,200	100	4,550	100	3,850	500	18,000	330	17,820
Monastery,	240	15,120	210	7,560	420	15,120	395	21,330	210	8,820	650	23,400	500	18,000	200	8,400		

Natrona,	331	49,650	190	19,000	1,100	41,250	355	52,950	20,000	1,050	39,375	361	46,651	130	12,500	1,100	41,250
Northside,			205	2,800					16,950					240	24,000		
North Webster.									3,570								
Oak Hill,	150	6,300	205	8,610	560			13,725	9,450	675	31,050	180	7,560	120	4,940	200	9,200
	170	7,140	160	6,720					8,850					110	4,620		
	210	8,820	180	7,560					210								
Oak Hill, No. 4,																	
Ocean,								20,280			21,000						
Penn Gas, No. 1,		25,480		19,000				26,000	420	500	26,000		26,000	380	19,000	500	26,000
Penn Gas, No. 2,	380	19,810	570	18,810	1,055		210	12,180	320	940	37,600	220	12,760	480	15,840	940	37,600
	255	14,726	300	16,185			250	17,150	470	15,510		320	10,620	335	14,237		
Penn Gas, No. 4,		28,800	200	16,240	400	10,800		29,520	210	410	29,520		26,640	210	11,760	370	26,640
			200	7,260					210					210	7,260		
			300	12,600					340					250	10,500		
Plum Creek,	325	18,231	180	8,640	320	18,000	325	18,250	170	8,160	315	320	18,000	170	8,160	315	17,720
State Line,		12,500				12,780		10,279	6,500		12,559		12,179		6,400		12,179
Salisbury,	165	7,425	155	6,510	230	10,350	170	7,659	185	5,670	225	175	7,875	180	7,560	225	10,125
	60	2,340	75	3,375			45	1,755	75	3,375		55	2,145	90	4,050		
Sandy Creek,	300	14,400	220	10,560	170	8,160	310	14,880	110	5,280	90	4,820	280	13,440	160	7,680	4,320
Shaner,							150	5,400	155	5,580	223	8,820					
Southside,		36,000		17,100		37,180		32,000		16,210	35,880		31,800		14,850		35,360
St. Clair,																	
Stewartson,	200	4,800	63	3,660	202	4,040	203	4,932	68	3,060	266	206	4,944	110	6,930	170	7,140
Standard,	390	28,680	320	16,000	423	29,100	660	33,000	410	19,630	471	34,000	339	2,550	360	24,000	266
United,		15,000		11,800		14,310	250	14,000	200	11,200	310	16,800	250	14,000	210	11,760	260
Union,		9,200		6,000				7,800		7,200			8,800		4,400		14,560
Watson,																	
Westmoreland,		27,085		12,000		16,200		35,000		14,400		26,120		24,500		9,300	12,000
										10,560				11,275		15,000	15,000
West Newton,							80	3,120	95	4,000	220	7,260	150	5,850	230	9,660	290
							130	4,320	80	3,660		180	5,400	130	5,450		11,000
Youghiogheny Coal Works,		14,100					100	5,485			100	5,485			140	5,880	
Youghiogheny Slope,				12,200		24,000											

TABLE IV.—VENTILATION OF COLLIERIES.—Continued.

	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
NAME OF COLLIERY.																		
Arnold,	132	3,960	110	3,850	118	3,340	131	4,230	115	3,925	126	3,780	115	5,950	110	5,350	110	4,800
Arlville,	.	.	.	.	.	.	70	3,560	80	3,840	100	4,800	60	2,880	60	3,360	100	4,800
American,	.	.	.	.	.	.	100	4,800	60	2,880	180	3,840	70	3,360	80	3,360	70	3,360
Alpsville,	.	.	.	.	.	.	300	10,500	150	8,400	300	10,500	50	2,800	42	2,352	59	3,304
Bessemer,	.	.	.	.	.	.	130	7,800	140	7,280	150	11,970	175	9,800	170	9,520	185	11,655
Barnes,	130	15,990	.	.	90	15,990	.	.	.	.	.	.	350	16,800	300	12,600	400	14,800
Blythe,	.	.	.	.	.	.	430	24,080	.	.	630	22,680	435	24,360	650	23,400	630	22,680
Buckeye,	455	24,360	.	.	630	22,680	300	10,800	.	.	70	6,720	224	8,960	.	.	108	4,320
Coultter & Huff,	184	7,360	.	.	102	4,080	194	7,760	.	.	127	5,080	224	8,960	.	.	128	4,320
Dillinger and Donnelly,	195	7,800	.	.	122	4,080	186	7,440	.	.	118	4,720	186	7,440	.	.	128	4,320
Duquesne,	215	8,700	.	.	122	4,080	234	9,360	.	.	108	4,350	234	8,400	.	.	118	4,320
Enterprise,	.	16,800	250	14,062	350	20,687	250	14,062	225	12,712	300	16,875	50	2,812	30	1,687	60	2,220
Eureka,	300	16,875	150	7,980	230	11,250	175	7,875	185	7,770	245	11,025	190	8,550	205	8,610	240	10,800
Fairbanks,	185	8,325	130	3,600	230	11,250	65	2,595	80	3,600	.	.	45	1,755	90	4,050	.	.
Glenn,	.	3,300	50	2,300	150	6,600	.	.	.	.	.	.	.	.	.	.	.	.
Hampden,	75	3,300	75	3,300	300	12,000	310	13,020	210	8,400	310	12,400	300	12,600	200	8,000	310	12,400
Hecla,	280	12,180	140	5,600	300	12,000	200	12,749	130	6,630	240	10,080	300	14,700	170	8,670	240	10,080
Hulmes,	.	12,250	150	8,500	300	12,000	.	.	.	.	.	.	.	.	.	.	.	.
Isabella,	360	8,775	130	8,380	400	8,100	.	.	200	8,200	.	.	.	.	130	7,150	.	.
Larimer,	.	29,520	200	5,850	.	.	350	14,700	219	10,074	360	15,120	375	15,750	210	8,820	380	15,960
Latrobe Coal Works,	.	.	.	7,498	.	12,314	592	23,080	.	.	320	15,040	756	30,240	.	.	421	19,787
.	.	.	.	7,740	.	7,740	120	5,880	100	4,900	120	8,640	130	6,370	110	5,300	140	10,080

Loyal Hanna,	250	13,720	65	2,730	155	12,400	260	12,740	120	5,880	190	9,310	225	11,225	115	4,830	220	10,780
Mullen,	140	10,780			230	11,270	120	9,240			300	3,750	105	8,025			250	3,125
M. Graver,	70	2,940					80	3,360			110	8,800	80	3,360			220	7,200
Millwood,									100	4,800	400	16,000	180	8,100	130	5,400	400	21,600
M. Saxman,	320	16,000	60	5,600	260	10,400	520	26,000	120	5,760			150	6,750	120	5,040		
Moorewood, A,	200	8,400	140	5,800	200	8,400	160	6,720	80	8,400	440	17,600	200	9,000	130	5,400	340	13,600
Monastery,	213	11,825	63	3,528	207	11,592	222	12,432	85	4,760	180	7,560	163	6,720	60	6,400	200	8,400
Moorewood, B,			77	4,312					70	3,920	197	11,032			140	5,880		
Mutual,			99	5,544					60	3,360								
Narona,			170	10,276					103	5,760			280	10,080	180	6,480	175	11,025
Ocean,	119	6,664	101	5,656	192	10,762	154	8,624	72	4,032	153	10,080					250	14,000
Oak Hill, No. 3,			111	6,216			200	12,000	87	4,972	250	14,000	200	12,000	150	9,000		
Oak Hill, No. 4,	365	54,750	169	24,000	1,300	48,750			150	9,000								
Osceola,			267	26,700														
Penn Gas Co., No. 1,			140	5,850	180	21,000	160	7,040	145	6,090	195	8,970	165	6,930	140	5,880	175	7,958
Penn Gas Co., No. 2,	340	17,000	330	14,190	940	37,600	215	12,470	325	13,817							400	28,800
Penn Gas Co., No. 4,	220	12,540	442	14,586			320	15,080	430	14,550							250	9,000
Penn Gas Coal Run,			250	14,000	353	25,200		23,800	300	16,800	403	23,800	170	9,860	230	15,510	950	38,000
Plum Creek,			200	7,200					150	54,000			400	19,600	470	15,510		
Port Royal,			220	9,240					270	11,340								
Pittsburgh and Kiskiminitas,																		
Rising Sun,																		
Stewardson,	180	4,320	66	2,970	198	3,960												
St. Clair,	220	6,600	100	6,300	150	6,300												
South Side,				15,975		35,204												
Smithton, No. 1,	200	12,800																
Smithton, No. 2,	150	9,600																
Shaner,	150	9,600	80	3,840	245	11,760											200	10,800
Standard,	90	4,050	170	8,100														
State Line,	550	27,500	400	20,000	578	27,972	519	29,000	300	18,000	471	34,000	625	31,200	360	18,000	328	34,000
Sandy Creek,																		
South-West,	250	12,000	180	8,640	100	4,800	340	16,320	120	5,760	110	5,280	240	11,520	180	8,640	100	4,800
United,																		
	300	16,800	280	15,680	300	16,800	280	15,680	250	14,000	300	16,800	150	13,400	180	2,940	250	15,680
													70	3,920				

TABLE IV.—VENTILATION OF COLLIERIES.—Continued.

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.
Union Coal Works.	770	6,630	130	5,460	200	7,800	130	5,460	310	12,400	150	5,840	250	9,450	230	11,200		
West Newton,	150	4,500	120	5,040	140	4,200	120	5,040	.	.	140	4,800	135	5,670	.	.		
Westmoreland Shaft, . . . . .	.	.	.	.	.	22,730	210	10,680	800	13,500	184	19,872	135	8,725	225	10,125		
West Overton, . . . . .	.	.	.	.	.	7,550	222	9,990	306	13,770	.	.	210	9,450	234	11,928		
Youghiogheny Slope, . . . . .	.	13,100	.	12,100	180	13,500	.	11,200	110	4,620	146	9,103	410	19,680	76	3,192		

TABLE IV.—VENTILATION OF COLLIERIES.—Continued.

NAME OF COLLIERY.	OCTOBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
American,	60	3,360	40	2,240	62	3,472
Arnold,	151	6,030	146	6,610	150	6,000
Alpsville,						
Amieville,	90	4,320	80	3,840	70	3,360
	86	3,840	90	4,320		
Blythe,	400	16,800	420	17,640	440	4,320
Coulter & Huff,	420	23,520			625	22,500
Duquesne,,	187	7,480	223	8,920	129	5,160
	216	8,640	235	9,400		
Enterprise,		9,200				8,900
Eureka,	55	3,093	55	3,063	65	4,255
Fairbank,	200	9,000	230	9,660	250	11,250
	45	.	50	2,250		
Hampton,	280	11,760			300	12,000
Hecla,	260	12,740	150	6,120	260	10,920
			120			
			130			
Isabella,	355	14,910			350	14,700
Larimer,	755	30,200	217	9,114	295	13,865
Latrobe,	100	7,200	90	4,410	110	5,390
Loyalhanna,	275	13,475	139	6,370	300	3,750
	105	8,085				
	110	4,620				
		4,500				
Mullen,		10,440	190	6,840	180	11,340
Monastery,	290	10,440	150	6,300	180	7,560
M. Saxman,	160	6,720			450	19,800
M. Graver,		25,770			320	12,800
Millwood,	380	19,000	69	6,200	216	12,096
Morewood, A,	183	11,148	95	5,320		
			100	4,424		
			79			
Morewood, B,	181	10,136	75	4,200	205	11,480
Oak Hill, No. 3,	165	6,930	160	6,720	210	9,660
Oak Hill, No. 4,	172	7,224	153	7,056	600	27,600
	165	6,930	165	6,930		
Ocean,		21,300				21,360
Oceola,		13,000		12,000		14,075
Penn Gas, No. 1, Shaft,		23,400	360	18,000	450	23,400
Penn Gas, No. 2, Shaft,	250	14,250	450	14,850	970	38,800
	325	16,250	350	16,450		
Penn Gas Coal Run,		23,800	100	12,000	710	24,140
Penn Gas, No. 4, Mine,		26,640	279	9,720	370	26,640
Plum Creek,	340	19,125	183	8,734	330	18,563
Southside,		34,060	345	15,525	730	37,960
South-west,	105	5,880	60	3,360	102	5,712
Standard,	504	27,000	346	18,000	293	27,500
Sandy Creek,	330	15,846	190	9,120	160	7,680
Shaner,	110	5,060	200	9,200	350	15,410
	130	5,780	100			
	100	4,600				
United,	165	9,920	210	12,260	330	18,480
West Newton,	199	7,110	220	9,240	295	11,800
Westmoreland Shaft,	229	24,732	170	8,160	340	27,540
West Overton,	140	6,860	430	20,640		

LIST OF ACCIDENTS occurring in the mines of the Second Bituminous Coal District of Pennsylvania, for the year ending October 31, 1883.

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Jan. 6	William Bradstock,	16	Single,	6	.....	.....	.....	Fatally injured by fall of slate in Ocean mine.
31	B. F. Painter,	33	Married,	.....	.....	.....	.....	Killed by falling slate in Penn Gas Co., No. 4 mine.
Feb. 13	Jacob Walle,	38	Married,	.....	.....	.....	.....	Injured by fall of slate in Coulter & Huff mine.
19	James Webster,	.....	Married,	.....	.....	.....	.....	Hurt by slate falling in Ocean mine.
20	W. S. Crookshank,	23	Single,	.....	.....	.....	.....	Hurt by wagon in Saltsburg mine.
Mar. 1	Thad. Brown,	.....	Married,	1	.....	.....	.....	Hand cut by fall of coal in Horner & Roberts mine.
12	Alex. Allen,	.....	Married,	.....	.....	.....	.....	Back broken by a fall of slate in Larimer No. 3 mine.
13	John Rathget,	.....	Married,	.....	.....	.....	.....	Leg broken by fall of slate in Larimer No. 3 mine.
23	Michael Divens,	.....	Married,	.....	.....	.....	.....	Leg crushed by fall of slate in Horner & Roberts mine.
24	William Muir,	30	Married,	.....	.....	.....	.....	Killed by fall of slate in Youghiogheny Valley mine.
9	Joseph Slotts,	40	Married,	.....	.....	.....	.....	Bruised about ankles and feet by fall of slate in Mutual mine.
April 6	David Harris,	.....	.....	.....	.....	.....	.....	Leg badly bruised by fall of coal in Westmoreland shaft.
6	Robert Klingensmith,	.....	.....	.....	.....	.....	.....	Arm broken by falling down engine-house steps at Westmoreland shaft.
18	Gabriel Couple,	45	Single,	.....	.....	.....	.....	Back hurt by slate falling in Cornell & Werling mine.
20	Thomas Elliot,	16	Single,	.....	.....	.....	.....	Struck by falling slate in Cornell & Werling mine.
25	David Millwood,	30	Married,	.....	.....	.....	.....	Bruised by pit wagon while driving in Standard mine.
26	Paul Muller,	21	Single,	.....	.....	.....	.....	Fatally injured by fall of slate in Penney mine.
28	George Elger,	30	Married,	.....	.....	.....	.....	Hand crushed while coupling cars at Amleville mine.
May 7	Lewis White,	17	Single,	.....	.....	.....	.....	Leg jammed by pit wagon in Moorewood B shaft.
13	Lewis McCall,	39	Single,	.....	.....	.....	.....	Killed by trying to pass under a descending cage in the United shaft.
14	James Kefler,	35	Single,	.....	.....	.....	.....	Killed by falling slate and coal in Horner & Roberts mine.
June —	James Lynch,	.....	.....	.....	.....	.....	.....	Hand hurt by slate in Youghiogheny coal works.
7	T. McWilliams,	16	Single,	.....	.....	.....	.....	Hurt by falling slate in Penn shaft No. 1.
7	J. W. Davis,	37	Married,	3	.....	.....	.....	Fatally by a fall of roof in the Saltsburg mine, on the B. & O. R. R.
12	Eugene McCarthy,	.....	Single,	.....	.....	.....	.....	Ankle crushed by wagons in Southside mine.

15	John Watchhorn,	52	Married,	7	.....	16	Killed by falling slate in old Eagle mine.
19	Edward Hines,	.....	Single,	.....	.....	.....	Collar bone broken by getting on a moving trip in the Morewood A shaft.
28	Frank Cornell,	22	Married,	.....	.....	28	Foot injured by wagon passing over it in Cornell & Werling mine.
July	Severana Mogel,	31	Single,	.....	.....	July 7	Killed by fall of slate in M. Graver mine.
20	Richard Graham,	24	Single,	.....	.....	.....	Finger taken off by cage in United mine shaft.
25	Robert Graham,	19	Single,	.....	.....	.....	Foot bruised by wagon in United mine shaft.
25	Charles Kaylor,	17	Single,	.....	.....	25	Killed by fall of slate in Coulter & Huff mine.
.....	J. F. Wild,	54	Married,	.....	.....	31	Head bruised by being caught against the roof while riding out of the Hampton mine.
Aug. 2	Joseph Jun,	35	Married,	4	.....	.....	Fatally injured by falling slate in the Shaner mine.
9	David McKenna,	57	Single,	.....	.....	.....	Killed by fall of slate in Eureka mine.
13	Robert Devine,	42	Married,	7	.....	.....	Fatally injured internally by a fall of slate in Coulter & Huff mine. Died August 18.
15	John Walters,	32	Married,	.....	.....	.....	{ Burnt by explosion of fire-damp in old workings of the old Shofon mine.
15	Samuel Devey,	36	Married,	.....	.....	.....	Foot hurt by wagon in the Standard mine.
15	William Peffer,	20	Single,	.....	.....	.....	Slightly hurt by fall of coal in Mutual mine.
.....	A. W. Hughes,	48	Married,	.....	.....	.....	Leg broken by being caught between the wagons and ribs in the Morewood "B" shaft.
20	James Hughes,	24	Single,	.....	.....	.....	Leg broken by fall of slate in Larimer No. 3.
28	William Dugan,	16	Single,	.....	.....	.....	Hip bruised, not seriously, by a piece of slate in the Isabella mine.
29	John Hinebine,	37	Married,	.....	.....	.....	Had his leg broken by a fall of roof coal in No. 4 mine, Penn Gas Coal Company, on July 26, 1883.
Sept. 2	Thomas Shoff,	35	Married,	.....	(Case not reported,)	.....	Injured by fall of slate in Ocean mine.
10	William Young,	45	Married,	.....	.....	.....	Both legs broken by falling slate in the Ocean mine.
18	George Giles,	40	Married,	.....	.....	.....	Arm broken by fall of slate in Amikville mine.
26	Joseph Frye,	26	Single,	.....	.....	.....	Head badly cut by falling slate in Ocean mine.
26	A. Pearson,	40	Single,	.....	.....	.....	Ribs broken by being hit by wagon on incline plane at Larimer mine.
13	Arch Summerville,	40	Married,	.....	.....	.....	Leg broken by slate in Fairbank mine.
Oct. 25	W. Waddle,	21	Single,	.....	.....	.....	Injured by fall of slate in Osceola mine.
14	David Christy,	48	Married,	.....	.....	.....	Leg broken by fall of slate in Westmoreland shaft.
25	Samuel Bodder,	56	Single,	.....	.....	.....	Foot crushed while driving in Loyal Hanna shaft.
27	Smith Mitchell,	17	Single,	.....	.....	.....	Badly bruised, and arm broken by fall of roof in the South-West mine.
31	Robert Barr,	33	Married,	.....	.....	.....

THIRD DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of Pennsylvania :*

SIR: In compliance with the amendments to the bituminous mining act passed at the last regular session of the Legislature, requiring the bituminous mine inspectors to complete their annual report on or before the first Monday of November in each year, I herewith submit my report of the inspection of mines in the Third Bituminous Coal District, composed of Beaver, Butler, Crawford, Clarion, Cameron, Erie, Elk, Forest, Jefferson, Lawrence, Mercer, McKean, Venango, and Warren counties for the ten months ending October 31, 1883.

The amendments to the act also provided for the appointment of two additional inspectors, who were commissioned last August, and out of the four inspection districts six were constructed. Clearfield county was taken from the Third, while Beaver and Butler counties were added to it, making fourteen counties, ten of which contain mines.

I am glad to be able to report a decrease in the number of both fatal and non-fatal accidents during the last ten months in comparison with the first ten months of last year, 1882. This year there are twelve (12) fatal and twenty-six (26) non-fatal against seventeen (17) fatal and forty-four (44) non-fatal accidents for the full year of 1882. James Cameron and Daniel Wohlfrandt lost their lives through gross neglect, as they both had been requested to secure the roof by the mining-boss in charge of the mines and by miners that were working near them previous to its falling upon them, and some of the others might have been saved had they been more careful.

CAUSES OF FATAL AND NON-FATAL ACCIDENTS.

Fatal.	
By falls of roof,	6
By falls of coal,	5
By mine wagons,	1
Total,	<u>12</u>
Non-Fatal.	
By falls of roof,	3
By fall of coal,	12
By mine wagons,	9
By sundry causes,	2
Total,	<u>26</u>
Number of widows,	7
Number of orphans,	<u>14</u>
Number of mines in the district,	<u>90</u>

Number of miners in the district, approximated,	4,140
Number of laborers (day hands) in the district, approximated,	644
	<hr/>
Total number of employés in the district, approximated,	<u>4,784</u>
	<hr/>
Number of mines opened during the ten months,	16
Number of mines exhausted during the ten months,	<u>6</u>
	<hr/>
Number of tons (2,000 lbs.) of coal mined, (reported,)	1,427,365
Number of tons (2,000 lbs.) of coal mined, (approximation,)	122,000
	<hr/>
Total production,	<u><u>1,549,365</u></u>

J. L. Rankin, mining-boss of New Catfish mine, Clarion county, was prosecuted for neglecting to furnish timber, in compliance with the fifth section of the act, for the working place of John Steele, miner, who lost his life by the roof falling upon him, and had not any props in room with which to secure it.

Mr. Steele lost his life on the 27th of October, 1882, and on November 14 I had Mr. Rankin brought before Justice McGregor, of East Brady, upon a charge of neglect of duty, and after having a hearing before the justice, he was bound over to the court for trial. He was tried at the January term of court on the 19th, and on the 20th the jury rendered a verdict of guilty as indicted. The counsel for the defense made a motion for a new trial, which was argued at the argument court in the month of March. His Honor Judge Knox refused a new trial, and sentenced J. L. Rankin to pay a fine of (\$200) two hundred dollars and costs. The defense at this stage of the proceedings made their last effort to have the case brought before the Supreme Court on a writ of error, but this was refused, and the case was finally settled in May last by Mr. Rankin paying fine and costs. This was quite an important case, and required a great deal of my personal attention, and as the defendant was represented by able counselors, I had to employ special attorneys to assist the district attorney in the prosecution for the Commonwealth at my own expense.

During the ten months I have examined all of the mines with the exception of those that are located in Butler and Beaver counties, and found them as a whole in a very satisfactory condition. Nearly all of the mines are ventilated by artificial means, and in many instances the volume of air circulated through the workings was in excess of the requirements of the law; however, there are still a few mine officials who are very tardy in complying with the requirements of the act. For a brief description of the mines, fatal accidents, air measurements, and mining statistics see another part of this report. All of which is respectfully submitted.

Yours very respectfully,

THOMAS K. ADAMS,
Inspector of Third District.

WHEELER P. O., MERCER COUNTY, November 5, 1883.

NEW VENTILATING POWERS ERECTED DURING THE YEAR AT THE FOLLOWING MINES:

A 7'×4' furnace at Falls Creek mines, by Falls Creek Coal Company, Clearfield county.

A small furnace at the Derby mine, by the Barnes Bro's, Clearfield county.

A 6'×3' 6''×18' furnace at Fairmount mines No. 2, by Fairmount Coal and Iron Co., Clarion county.

A furnace, 6' 6''×3' 6'', at Pine Run mines, by Stephenson and Mitchell, Clarion county.

A 4'×3'×18' furnace at Dagus mine No. 11, by N. W. Mining and Exchange Co., Elk county.

A 8' 4''×23' at Dagus mines, for Nos. 8, 13, 14, 15, by N. W. Mining and Exchange Co., Elk county.

A 8' 6''×3' 6'' at Bucktail mine, by N. W. Mining and Exchange Co., Elk county.

A furnace 6'×3' 6'' at Penn mine, by Penn Coal Co., Lawrence county.

A 10' diameter fan at Griffith Slope, by Ormsby & Co., Mercer county.

A Murphy fan, 8' in diameter, at Walston mine No. 1, by Rochester, Pittsburgh Coal and Iron Co., Jefferson county.

A Murphy fan, 8' in diameter, at Walston mine No. 2, by the Rochester, Pittsburgh Coal and Iron Co., Jefferson county.

DESCRIPTION OF THE MINES.**Clearfield County.**

The Rochester mine, drift opening, located at Du Bois, and operated by Bell, Lewis and Gates, is one of the largest mines of the district, producing about fifteen thousand tons, of run of mine coal per day, and giving employment to four hundred and fifty employés. The Murphy Ventilator, six feet in diameter, is doing excellent work, and would be quite a sufficient power to ventilate the workings properly, if it was used for this purpose alone. A locomotive has been put into the mine for hauling purposes, which requires about one half of the ventilation to ventilate the tunnel. Weight of engine nine tons, and hauls from inside "turn-out" to tippie, a distance of several thousand feet, thirty cars a trip, and each containing four thousand four hundred eighty pounds of coal. Coke is being used for firing engine instead of coal, which is an improvement, especially in regards to the smoke. The main heading road has been relaid with much heavier iron rails, and, also, the area of heading has been increased to sixty-two feet. The ventilation has had to be divided into two separate currents, one for engine road, and the other for ventilating the workings. I measured a volume of air on the return air course, at a point several hundred feet from shaft, of twenty-four thousand nine hundred cubic feet. Measured at inlet for workings a volume of fourteen thousand eighteen hundred and twenty-two cubic feet, and near face of No. 6 cross-heading measured eight thousand seven hundred and fifty

cubic feet per minute. Near face of Nos. 4 and 5 butt-headings, found air defective, but were engaged in driving an air-course from fourth to fifth heading. Owing to the changes being made by the putting in of locomotive, the ventilating arrangements were not completed at time of visit. System of working double-heading, and there can be no difficulty in having mine properly ventilated, if only the details of the mine are attended to. The drainage is good, and roads are in good condition. A coal bin for holding coal has been built at tippie, and will hold seven hundred and sixty tons of slack and coal. A. J. McHugh, superintendent. Michael Kelly, mining-boss. Visited Rochester mine twice during the last ten months.

Falls Creek Mine.

I visited this colliery on February 28, which is being operated by the Falls Creek Coal Company. T. J. McConnell, superintendent; John B. Williams, mine-boss. It is a drift opening, producing about three hundred tons' run of mine coal daily, and employing seventy employes. System of working is double-heading, three of which are being driven at time of my examination. Size of entries 6'×8', rooms twenty-one feet wide, with pillars of about eighteen feet. Heading roads are laid with sixteen pound T iron, and are well kept. When measured, four thousand eight hundred cubic feet of air were being circulated throughout the mine, which was being produced by a fire-lamp, but since my visit a substantial 7'×4' furnace has been built, which gives a sufficient volume of air. Drainage good.

Williamsport Mine,

Located at Tyler's Station, and operated by the Clearfield Coal Company, was examined on March 5.

Two drift openings are being operated, the workings of which are connected. The main headings are driven on the end of coal, with rooms opened on one side only. System of working is single entry, with air courses. Mine ventilating power is a fire-lamp, and produced on day of visit three thousand cubic feet of air through the main workings of the mine. Production of coal one hundred and fifty tons daily. Number of workmen employed in connection with mine and the coke ovens fifty-two. Mine dry and comfortable, and very safe work inside for the miners. Mine in fair condition.

Webster, No. 2,

Located at Houtzdale, was put in operation shortly before my visit, on March 6, by the Houtzdale Coal Company. C. W. Van Dusen, superintendent; James H. Minds, mining-boss.

This is a slope, put down on an angle of twenty-two degrees. Coal hoisted by iron-wire cable and double engine of eighty horse-power. One boiler thirty-two feet long and three feet diameter. Were employing from fifteen to twenty men, but at present they employ about ninety. Venti-

lating power was not built when I visited the mine, consequently I could not take air measurement, but since then I understand the ventilating arrangements have been completed.

Eureka No. 2.

Located near Houtzdale; operated by Berwind, White & Co. Peter Cameron, senior, superintendent, and Peter Cameron, junior, mining-boss.

Two drift openings, with their workings connected, which was examined on April 28. Found ventilation of mine good, but was unable to take a measurement, owing to my air-meter getting broke immediately after going into mine, but by approximation believe there would be about twelve thousand cubic feet of air circulating. System of working double-heading truly carried out. Drainage on main heading very defective, which the mining-boss promised to have remedied at once. This mine, which is quite extensive, was running steady. Eight hundred and forty (840) tons of run of mine coal are produced daily, and two hundred and seventy-six persons are employed, and thirty-one mules are required to haul that amount of coal. Mine is in good condition with the exception noted. I visited this mine twice during the year.

Reed Mine.

This is a new drift opening on the Morrisdale Branch railroad, and operated by J. B. Reed & Co. J. B. Reed, superintendent, and S. E. Roach, mining-boss.

I visited this mine April 30, but they had not commenced shipping coal at this date, although they would be ready to do so the week following. Coal tipple is on the Morrisdale railroad, but mine is back from it one and one fourth miles, and the coal has to be brought forward from mouth of drift to tipple by small locomotive. Locomotive road is laid with thirty-pound steel rails. Gauge of road three feet six inches. Size of drift eight feet spread, seven feet collar, and six feet high, supported by timbers of eight inches square. They are to work on the single-heading plan, with air-courses. Size of entries, 8'×6'. Have sunk an air-shaft thirty feet deep, at which they intend to erect a ventilating furnace. Were employing sixteen men.

Empire Mine.

A drift opening. I examined it April 30, and found it in splendid condition, running about three fourths time, producing four hundred tons of coal daily, and employing one hundred persons and five mules. Two double-headings are being driven, one main and the other cross-heading. Have sunk another ventilating shaft, fifty-seven feet deep, six feet diameter, with a stack on top of twenty-four feet. I measured a volume of air at inlet of eleven thousand two hundred and eighty cubic feet, and at outlet a volume of twelve thousand one hundred and sixty cubic feet, and at the face of main and cross-heading eight thousand two hundred and twenty-

five cubic feet. This mine is up to the requirements of the ventilation act, both as regards ventilation and drainage. Met quite a large fault in mine, with line of fracture north five degrees west, as you approach it to the south-east or nearly east. It indicates an "upthrow" of sixteen feet. This interferes with the original plan of working the mine considerably. Mr. Ashcroft, superintendent of mine, has erected a stationary double engine of thirty horse-power, which operates endless wire-rope for hauling coal from inside station in mine, a distance of one thousand five hundred feet. A vertical pulley is attached to engine shaft, around which the rope is wound twice, then around a horizontal pulley at each end of haul (at tippie and inside station) beneath the road rail. The hauling part of rope is taken over rollers in middle of road, and the other half of it conveyed along side of road on small pulleys. The machinery hauls, with a light grade against the load and hauls, fifteen cars at a trip, each car holding thirty-five hundred-weight of coal. This is quite an improvement on mule hauling. Mine operated by the Empire Coal Company. John Ashcroft, superintendent. Evan Evans, mining-boss.

Morrisdale Mines Nos. 10, 11, 12, and 13.

I examined the mines May 1, which are located one mile from Morrisdale, and coal being brought forward by small locomotives from drifts to tippie. Have four drift openings in operation, with Nos. 7 and 8 not running at present. No. 13 drift workings are connected with those of No. 8, having same system of ventilation to ventilate both places. Size of No. 13, nine feet spread, six feet collar, and seven feet high, with timbers ten inches square. Heading roads laid with T rail. Air measurement at inlet, eight thousand nine hundred and twenty-five cubic feet, and at face of heading, three thousand one hundred and twenty cubic feet circulating. No. 12 same size as 13. Have sunk an air-shaft twenty-four feet deep and erected stack on top thirty-two feet. Air good. No. 10 employs eighty miners. Air measurement at inlet, twelve thousand and twenty-five cubic feet—about thirteen thousand cubic feet at furnace. Had a strong current at face of heading. No 11 in good shape. The ventilation and drainage of mines good. Gives employment to two hundred employes. Operators, R. B. Wigton & Son. William Wigton, superintendent. William McCann, mining-boss.

Allport Mine.

Drift opening, located on Hawks Run Branch railroad, and one and one half miles from Morrisdale. Operated by Holt, Schoonover & Co. John M. Holt, superintendent. Timothy Morton, mining-boss.

Size of drift, ten feet spread, eight feet collar, and six feet high. Struck a fault in main heading bearing north 30° east, with line of fracture bearing north 10° west, indicating a "down-throw" of coal of twelve feet. An air-shaft has been sunk thirty-eight feet deep, six feet in diameter, and having forty-eight feet of wooden stack on top. The furnace was not built at

time of visit, May 1. Number of hands employed, forty, and producing two hundred and forty tons daily. Mine not very extensive, as it only commenced shipping coal at end of last year.

Decatur Mine.

Drift opening, is located near Morrisdale, and employs forty men, with a daily production of two hundred and forty tons of coal. Found quite a sufficient volume (seven thousand seven hundred and fifty cubic feet) of air being circulated throughout the mine. The only place in mine which was not sufficiently ventilated was in the dip heading, otherwise the mine was in splendid condition. John Todd, mine-boss.

Victor No. 1

Is located near Phillipsburg, and operated by the Victor Coal Company. D. Holt, superintendent; John Walton, mining-boss.

Mine running at time of examination (May 2) about one third time, employing sixty miners, twelve day hands. Production, four hundred tons daily. Two headings are being driven. Made a new drift opening on south side of hill, in which the Victor was first opened. A locomotive tunnel six hundred and fifty yards long has been made through the hill to new drift, so that the locomotive can haul the coal from it to the chutes, length of which is four thousand three hundred and fifty feet. Ventilation and drainage of mine were excellent, making the workings very comfortable to work in.

Glenwood Mines

Was examined May 2, and I found it in very good condition. At inlet air-courses measured a volume of fourteen thousand cubic feet per minute. The ventilation throughout the whole of the workings was excellent. The workings are dry and comfortable. Drainage was favorable with the exception of a short distance on main hauling road. The mine was running very unsteady owing to the dullness of the trade. Employing fifty employes, and at present only producing about one hundred and fifty tons daily run of mine coal. C. R. Colburn, mining-boss.

Derby Mines,

Operated by the Barnes Bros., was examined May 2. Located near Phillipsburg. This mine has been considerably improved since my visit of last year. The hauling roads have been repaired, roof has been blown down, roads raised and laid with new T iron, the ventilation has been increased by erecting a small furnace, and have sunk a ventilating shaft at which they are going to build a good furnace. Were circulating three thousand seven hundred and fifty cubic feet of air through the workings. Employ thirty-two employes at date of visit, and producing one hundred and sixty tons' daily run of mine coal. Ventilation, drainage, and roads of mine were in favorable condition. Edward Shaw, mining-boss.

Lancashire Mines,

Operated by the Barnes Bros. Richard Ashcroft, mine-boss, is located near Phillipsburg.

Mine not running steady owing to scarcity of contracts. Employ one hundred and ten employés, and can produce about five hundred tons daily run of mine coal. System of working, single-heading with air-courses driven from one cross-heading to another. Volume of air measured at inlet and outlet was seventy-two hundred cubic feet, which was well conducted to face of all the headings. Roads dry. Mine in good condition generally.

Colorado Mine,

Near Phillipsburg, was running about one half time. Number of employés, forty, and production, one hundred and sixty tons run of mine coal. Air measurement at inlet and outlet on an average of twelve thousand five hundred cubic feet, and at face of headings thirty-four hundred cubic feet. Ventilation splendid. System of working, heading and air-course. Roads and workings dry. Operators, A. & W. H. Barlow. Thomas Pilkington, mine-boss.

Coddyridge Mine,

Near Phillipsburg, was running very unsteady at time of visit, May 4. Number of employés, thirty, with a daily production of one hundred and twenty-five tons. Volume of air circulating in workings, two thousand nine hundred and seventy feet. Air was very weak at face of workings. They have added a sixteen-foot length of boards to air stack, but the furnace is entirely too small for the mine. Drainage in fair condition. Operator, H. K. Grant; Stephen Sheldon, mine-boss.

Leonard Mine,

Near Phillipsburg, operated by John Ashcroft, is not very extensive, and is the only mine in this region that depends on the natural forces to ventilate it. I, however, found the mine in very good condition. Number of employés, nineteen, with a daily tonnage of seventy-five tons of mine coal. Mine is back from railroad about nine hundred feet. Only one heading is being driven. Mine and coal territory about thirty acres.

MINES IN CLARION COUNTY.**Hillville Mine,**

Operated by the Pittsburgh Coal and Mining Company, has been examined twice during the year, (on February 23 and September 7.) David Ditch is mining-boss.

The coal is let down an incline plane five hundred and sixty feet long. The coal of this mine is principally used for coaling the engines on the Allegheny Valley railroad. Were employing at first visit fifty employés. At last visit had only about twenty-five men. The mine depends upon the

natural forces alone for ventilation. The current of air was not strong, but as the men were all working near the main air-course, the air was not bad. The roads and workings are very dry.

Redbank, Nos. 1 and 2.

Operated by Alexander Reynold's Sons. Located at Redbank. David Reynolds, superintendent.

No. 1 mine employs thirty-two men, with a production of eighty tons per day. Have to haul the coal with mules about one mile from drift to incline plane. The coal is coked at the company's ovens, and used for their furnace. Ventilation was good, and workings and roads dry. This mine has been abandoned since my visit in February.

No. 2 is a new opening, and opened in a lower seam of coal than No. 1. Was employing twenty-four men. Measured nine thousand cubic feet of air at inlet. Mine ventilated by natural means. The day was favorable for ventilating the mines.

Fairmount, No. 2,

Operated by the Fairmount Coal and Iron Company. R. S. Shaffer, superintendent; R. Henry, mining-boss.

Drift opening, and employing one hundred and eighty-six men and boys, with a production of four hundred and fifty tons daily. Have built a ventilating furnace, size 6'×3', 6'×18'; also have an air-shaft forty-five feet deep, and built an air stack on top of shaft forty-two feet. Air measurement at inlet nine thousand cubic feet, at furnace ten thousand cubic feet. Air was well distributed to face of headings, and they were well ventilated, with the exception of No. 14 cross-heading, near face of which the air-course had fallen shut, but were busy driving another one, which would be completed in a few days. Mine, as a whole, is in fair condition. Have a mine locomotive hauling from drift to top of incline plane, which they had also introduced to haul from inside station, but owing to the ventilating and other arrangements not being suitable it was withdrawn, the intention is to put it in again the coming winter.

At time of visit, September 5, the company's other mine, (Long Run,) near here was idle, having a strike on hand with the workmen, which had existed for several weeks previous to this date, so had not the chance to examine.

Pine Run,

Examined September 6, is located near East Brady, and operated by Stephenson & Mitchell. Thomas Mitchell, superintendent; William Jents, mine-boss.

Number of miners, boys, and other employés one hundred and forty-one. Production two hundred and fifty tons daily. Have built a new furnace 6' 6"×3' 6". Depth of furnace shaft fifty-two feet, stack sixteen feet, and eight feet square. Air circulating in mine about ten thousand cubic feet

Near face of No. 12 cross-heading air defective, but air-course nearly completed to this entry, which would be main air-course. Other parts of mine well ventilated. Drainage excellent, and mine, as a whole, is in good condition.

Hardscrable Mine

Is located near East Brady, and operated by Brady's Bend Mining Company. C. F. Hartwell, superintendent; George Henry, mining-boss.

Examined the mine September 6, and only found a perceptible current at one or two places throughout whole of mine, but not sufficient to turn air-meter anywhere. They have a small furnace, but the mining-boss neglected to put fire in it, so the men had to suffer for his neglect. The company was notified of the defects. Number of miners employed one hundred and twenty-five, and nineteen day men. Production daily three hundred tons. Company have opened a new drift, connecting it with the old workings or those in Hardscrable. Have erected at top of plane a new structure at which the coal is to be screened and prepared before it is let down the incline plane to tipple. Drainage good.

Cameron Mine.

- Located at Cameron, Cameron county, and operated by the Cameron Coal Company. Superintendent, A. C. Danckelmann. Mining-boss, John Morris.

At date of visit, September 3, mine was working unsteady, about two days per week, and owing to the mine not being in operation at time of visit, I did not examine it. Number of employes about forty-four, engaged at coke ovens and the mine. Have erected ten pockets holding five tons of coal each, to be used for coaling locomotives on the P. and E. R. R.; also building twenty additional coke ovens.

ELK COUNTY MINES.

Dagus Mines.

Seventeen drift openings, is located near Centerville, and operated by the North-western Mining and Exchange Company. Mr. May, of Scranton, superintendent. David Robertson, assistant superintendent, with John Aikam, John Currie, John R. Hoskins, and Victor Swanson, as mining-bosses.

The company has opened nine new drifts during the year, and although a few of them has not shipped any coal yet, they will be ready to do so as soon as the company's branch railroad, from the Rochester and Pittsburgh railroad, is completed.

Drifts Nos. 12, 16, 17, and 21 have been opened in a coal seam higher in the measures than the one in which the other drifts are opened. They are reached by incline planes on an angle of about 15°. At No. 11 a new furnace has been built, size, 4'×3'×18', with eight feet bars. Depth of shaft forty-five feet, stack, thirty-two feet. New furnace to ventilate drifts Nos.

8, 13, 14, and 15, size, 8'×4' 2''×23' 6'', depth of furnace shaft, thirty-eight feet, six feet square, with a wooden stack twenty-four feet high. Each of these drifts to be ventilated by this furnace, will each have an independent system of ventilation. The air from each drift will be conveyed to furnace by means of overcast, so that the return air of the one mine will not be allowed to go to the workings of any other. The arrangements are splendid, and if the boss, Mr. Ackam, who is a good practical miner, only attends to the details, I have no doubt but what the mines under his charge will be model ones. Mine-boss, Mr. Swanson, has charge of drifts Nos. 9, 10, and 18, and I found the mines up to the requirements of the ventilation act. The other mines are under the management of Messrs. Currie and Hoskins, and I found them in good shape. The company has purchased two seven-ton locomotives which are used for hauling the coal from the drifts to the incline planes. All the arrangements about these mines are excellent. They employ over four hundred employés, and produce daily about one thousand two hundred tons of coal, which will be increased the coming year.

Eureka Slope.

Located near Centerville and operated by Daniel Eldridge. Patrick Fleming, mining-boss.

Numbers of employés, ninety. Found mine, as far as ventilation was concerned, in good condition. Measured an average quantity of air at inlet and outlet of seventeen thousand cubic feet. At face of No. 2 heading, twenty-one hundred cubic feet. Owing to some of the doors being out of adjustment in this entry not one fourth of the air could reach the face of heading. In No. 3 heading, at the face, I measured ten thousand cubic feet of air. The mine is well ventilated, but roads and drainage just in middling condition. System of working, heading and air-course.

Cascade Mine,

Operated by Kaul & Hall, at St. Mary's, was examined August 30, and found in good order. At No. 1 drift, where twenty-two men are employed, three thousand cubic feet of air were being circulated through the workings. At No. 2 drift, where fifty-five men are working, I measured an average quantity of air of twelve thousand cubic feet at inlet and outlet. At the extreme end of workings, which was driven up to boundary, measured two thousand three hundred cubic feet. Condition of mine as regards ventilation and drainage is good. Martin Dippold is mining-boss.

St. Mary's Mine,

Operated by St. Mary's Coal Company, at St. Mary's, (Joseph Patton, superintendent, Joseph Eddy, mining-boss,) was examined August 30, and I found mine in fair condition. Air measurement near furnace, fourteen thousand seven hundred and fifty cubic feet, which was fairly distributed to face of workings. Drainage fair. Number of employés, ninety-four,

and producing two hundred and fifty tons daily. They use a portion of the coal for coaling the locomotives on the Philadelphia and Erie railroad. Have constructed a locomotive road, over which a six-ton locomotive brings forward the coal from drift to tipples. Gauge of road, two feet six inches, and laid with twenty-pound T-rail.

Tannerdale Mine,

Operated by the St. Mary's Coal Company, is employing sixteen men and shipping about forty-five tons of coal daily. Mine is in good condition as far as the ventilation and drainage are concerned.

Bucktail Mine

Is located at Rasselas and operated by the Northwestern Mining and Exchange Company. William H. Harris, mining-boss. This is a double-drift opening. Size of each is eight feet spread, six feet collar, and six feet high, with ten-inch square timbers. Main heading is continued double and cross-headings single, with air-courses. Quantity of air circulating through the workings was on an average of six thousand cubic feet, but have power to circulate three times this quantity if it were necessary. Have built a new furnace. Size 8' 6" × 3' 8", with a depth of shaft, including wooden stack on top of it, of ninety feet. Roads laid with twelve-pound T-rail; gauge, two feet six inches. Coal is hauled from drift to tipple at railroad, a distance of five hundred and twenty-one yards. Number of employes, sixty. This is a new mine, and workings have been laid out upon a good system, and at present in a very good condition.

JEFFERSON COUNTY MINES.

Washington and Pancoast Mines.

Located at Pancoast, and operated by Frank Williams. Henry Williams, mine-boss.

Pancoast mine has been exhausted since my visit in February, and Washington will not hold out long, as the pillars are being taken out of it. Both mines were employing forty-two men, and producing about one hundred and fifty tons daily. The mines were dry and ventilation good.

Hamilton Mine.

Located at Reynoldsville, and operated by the Hamilton Coal Company. A. K. Price, superintendent; Thomas E. Evans, mine-boss.

Number of miners, one hundred; day hands and mine boys, twenty-seven; production, about five hundred tons daily. System of working, partly double and partly single-heading. Quantity of air in circulation was averaged at ten thousand cubic feet, which was very well distributed to face of workings. Since my visit last march the old ventilating furnace has been taken down and rebuilt larger, which has increased the quantity of air considerably. Drainage and ventilation good.

Soldier Run Mine.

Located near Reynoldsville, and operated by Powers, Brown & Co. James A. Powers, superintendent, Benjamin J. Morris, mine-boss.

Number of employés, one hundred and thirty. Production daily, four hundred and fifty tons. Average quantity of air at inlet and outlet, eighty-five hundred cubic feet, but was not conducted to face of workings. Could not take an air measurement at face of main heading owing to the many leakages at the doors and stoppings. This mine has always been well ventilated until recently, which shows a neglect of those in charge to give that attention necessary to keep the details in order, so as the air-current can be conveyed to the workings. I made another visit to the mine, but it was idle owing to the miners being on a strike, which prevented another examination. A new hauling road has been made through the workings a distance of four hundred yards, which shortens the haul about the same distance, (four hundred yards,) and costing about \$240. It gives a favorable grade in favor of loaded trip, which enables each mule to take three and four cars instead of two over the old road. The drainage is fair.

Sprague Mine.

Located about two miles south of Reynoldsville, and operated by Powers, Brown & Co. James A. Powers, superintendent. Richard Smith, mine-boss.

Number of miners employed, seventy-three; other laborers outside and inside of mine, fourteen. Production, daily, three hundred tons. The drift is considerably higher than the railroad, necessitating the construction of a chute ninety-three feet long, upon which an apparatus is attached to regulate the velocity of the coal in its descent to railroad cars. It also prevents the breaking of the coal, and enables them to screen it more thoroughly. System of working, double-heading. Size of headings, eight feet wide and six feet high, with twenty-one feet pillars between them. Width of rooms, twenty-one feet; ribs, fifteen feet. Averaged quantity of air in circulation, seven thousand six hundred cubic feet, which was well distributed to face of workings. Double this quantity of air could be put in motion if necessary, as the furnace has the capacity to do it. Drainage is splendid, and roads laid with heavy T rail, and well kept.

Beechtree Mines.

Located at Beechtree, and operated by the Rochester and Pittsburgh Coal and Iron Company. General Manager, W. G. Platt. Mine superintendent and boss, Richard Woodward. Was examined March 3d. Two mines have been opened and are both double drift openings. Size of No. 1, eleven foot spread, nine foot collar, and 7' 6" high. Size of No. 2, twelve foot spread, nine foot collar, and 6' 6" high, the timbers twelve inches square. No. 1 main heading has been driven four hundred yards, and No. 2 four hundred and fifty yards. Headings are ten feet wide and six feet high. A Murphy Ventilator, six feet in diameter, has been erected at each drift. At No. 1 drift, with fan running at sixty revolutions, a

circulation of thirty-seven thousand seven hundred and sixty cubic feet of air per minute was given, and No. 2, with fan running at sixty revolutions, gave twenty-six thousand two hundred and forty cubic feet. On examination we found one of the air-course doors partly closed, which had a tendency to greatly reduce the volume of air in this mine. The fans are placed on the mouths of the back-heading, and were forcing the air into the mines. The mines are up to the requirements of the ventilation act. The outside arrangements are all of a substantial character, which will enable the company to make large shipments of coal.

LAWRENCE COUNTY MINES.

Clinton Mine

Is located near Clinton, and operated by the Clinton Coal Company. A. W. Harbison, superintendent. John Craig, mining-boss.

The company is operating three drift openings, and employs sixty miners and fifteen other day laborers. Are opening another drift on S. W. side of one of the hills and to be driven into old workings of one of the present drifts, at which are taken out coal. After this connection is made it will be used for a hauling road to haul the coal from their property in an opposite hill. The hauling roads are not in very good condition. The average volume of air in circulation was about seven thousand cubic feet. In the Miller entry, in center opening, the air was back from entry face quite a distance, owing to several rooms standing open at which doors ought to have been erected. Previously this company has had to handle their coal twice before it was put into railroad cars on the E. and P. railroad, and had to haul with mules their coal over a graded road for about one mile in length, but now this company, in connection with Lee and Patterson, of the Beaver mine, are grading a road so as they can get the railroad cars to their tipples at mines.

Beaver Mine.

Was examined March 26, and at time of visit mine was running very unsteady. Number of men employed, one hundred. System of working in mine is single entry, with air-course. Found the mine fairly ventilated, with the exceptions of two entries, which would be remedied in a few days. Measured an average volume of air at inlet and outlet of twelve thousand cubic feet, which was fairly distributed through the workings of the mine. The hauling roads are dry, with drainage good. Mine operated by Lee & Patterson; H. K. Hartsiff, superintendent; Samuel Graham, mine-boss.

Penn Mine.

Is operated by the Penn Coal Company. W. B. Enos, superintendent; John Riley, mine-boss.

This is a drift opening, but coal seam dipped sufficiently for the cars to run from mouth of drift to bottom of dip, nine hundred feet long. A sta-

tionary engine hauls from inside station to top of incline plane. The mine cars are let down the plane, which is six hundred yards long, by means of a friction drum, ten feet in diameter. Number of miners employed, fifty, and twelve day laborers. The ventilation of the mine was defective. Mine was ventilated by the natural forces alone, but were going to sink a shaft, and build a substantial furnace. Mine fairly drained.

Pearson Mine

Is located three miles north of New Castle. Operated by the New Castle Railroad and Mining Company. Superintendent, George Pearson; John Bell, mine-boss.

This is a shaft opening, size ten feet by eight feet, with a board partition dividing the shaft into two compartments. One of them is used as an upcast, and the other as an inlet for ventilating purposes. Exhaust steam from pump is conveyed into upcast, which has a tendency to rarefy the air and create a circulation. The quantity of air measured was three thousand cubic feet, and conducted to the face of workings. Found them working thirty-seven men in mine, and had but one opening, but caused another opening to be provided, which is a 6'×8' shaft. Mine will not be extensive.

Clermont and Instanter, Nos. 1 and 2.

These three drift openings are located at Clermont, McKean county, and operated by the Buffalo Coal Company. J. H. Tate, superintendent, and Robert Dick, mining-boss.

Number of employes, miners one hundred and eighteen, other day laborers thirty-six. Air measurements in No. 1 Instanter averaged five thousand two hundred cubic feet, and in No. 2 Instanter average amount of air was six thousand cubic feet. In Clermont mine the pillars are being taken out, no work advancing in it. The ventilation and drainage of the mines were good. The coal from the mines is brought forward to tipples on railroad a distance of two miles by two small locomotives. The coal is carried that distance in cars holding two and one half tons, thus handling the coal twice before getting into railroad cars for shipment, which is considerable extra expense.

MERCER COUNTY MINES.

Bethel Shaft

Is operated by the Bethel Coal Company. John Phythyon, mine-boss.

Number of employes about seventy. The narrow work of the mine has all been driven to its boundary, and the pillars are now being drawn. The ventilation was fair, and at the extreme end of workings, in the south-west entry, measured six hundred cubic feet of air, and at face of the Anderson entry the quantity of air was one thousand six hundred and ninety cubic feet. Exhaust steam is used as the ventilating power. Mine is drained by Cameron steam pumps. Entry roads laid with T iron, and in good shape.

A vertical double engine, thirty-five horse-power, is used for hoisting the coal out of shaft. Ventilation from now until the shaft is finished will get better.

Chestnut Ridge Shaft

Is operated by Westerman, Filer & Co. Enoch Filer, junior, manager.

Number of miners sixty-four, and other employés sixteen, and shipping two hundred and fifty tons daily of lump and nut coal. Two entries were being driven. Ventilation was being produced by the exhaust steam from the Cameron steam-pumps that are used for draining the mine. Average quantity of air at inlet and outlet, which was fairly distributed to face of workings, was twelve thousand cubic feet. Entry roads partly laid with T iron, and partly with wooden rails. Roads in fair condition. The workmen have a good traveling-way into and out of mine. The coal is hoisted by a good horizontal engine, forty horse-power. Mine in fair condition generally.

Sharon Shaft

Is located at Chestnut Ridge and employing sixty-two employés. System of working single-entry, with air-courses. Found ventilation defective. There was one of the main air-courses closed shut by the roof caving in, and has been in this condition for some time. Seventeen men were working in the entry to which this air-course conveyed the air, and were obliged to work in this injurious atmosphere through the inexcusable negligence of the mine officials. Also the bottom of downcast shaft was about closed with ice, which obstructed the air considerably. The average quantity of air at inlet and outlet was two thousand six hundred cubic feet. At face of one heading quantity of air one thousand five hundred cubic feet. Drainage and roads in fair condition. Mine operated by Sharon Coal Company. M. B. Hofins, superintendent; Adam Seilor, mine-boss.

Pardoe.

This is a drift opening, and has been in operation for thirteen years. Upon examination, found drainage somewhat defective. Owing to the many local swamps in mine, it is almost an impossibility to drain the mine properly—two steam-pumps are used for this purpose. Mine ventilated by an eight feet diameter fan with a three feet face—it is used as a blower. Air measurements for the workings averaged eight thousand four hundred cubic feet, but was not conducted to face of some of the entries very well. Whole volume of air at outlet on locomotive tunnel, fifteen thousand seven hundred cubic feet. Employ a mine locomotive which hauls from inside station, a distance of one mile. Mine operated by the Mercer Mining and Manufacturing Company. Richard Lewis, superintendent. John Michaels, mine-boss.

Jackson Centre Mine

Is a drift opening, and employs forty miners and eight other laborers.

Air measurement at inlet and outlet averaged three thousand one hundred cubic feet, and at face of heading one thousand three hundred and sixty cubic feet—air produced by a furnace. Single-entry plan of working the mine. Drainage fair. Shipping about eighty tons of coal daily. Operated by the Jackson Centre Coal Company. W. J. Graham, superintendent. Augustus Winkelvohss, mine-boss.

Ormsby

Is a shaft opening fifty feet deep and giving employment to eighty-four miners and twenty other laborers. Ventilation produced by a fan eight feet in diameter, with three feet face or width of blades. Owing to roof of mine being so tender, the air-courses have to be made of small areas, which greatly diminishes the quantity of air of what it should be were the air-passages of larger size. Average quantity of air at outlet and inlet was eleven thousand seven hundred cubic feet. The air-current was very weak at face of one of the cross-entries. This was caused by many of the rooms on one side of the entry being driven through the air-course, necessitating the erection of a door at each room on the air-course side of entry. As there are about twenty of those doors hung on at the rooms in this entry, it is almost an impossibility for the air to get up to face of it. This is one of the defects of the single-entry plan of working a mine. Drainage of mine fair. A new hauling road, two hundred yards long, has been made which will shorten the haul fully one hundred and fifty yards—it is being laid with sixteen pound T iron. The other hauling road which used to have wooden rails are now being laid with T iron, which will enable the company to increase their daily out-put. Mine operated by Ormsby Coal Company, Limited. Richard Sneddon, mine-boss.

Stoneboro' Nos. 2 and 3.

No. 2 is a slope opening, and has been in operation about eighteen years, and employs one hundred and thirty miners and twenty other laborers. Mine ventilated by a furnace, and average quantity of air at inlet and outlet was sixteen thousand cubic feet, with fair distribution near face of some of the entries. The roads are long and in many places wet. The roof of the mine is very tender, and cannot drive wide entries so as to allow drains being cut at side of hauling roads.

No. 3 slope employs sixty-seven miners and nineteen other hands. Have sunk a ventilating shaft seventy-eight feet deep, over which the ventilating fan, ten feet in diameter, is placed. The fan is running on the forcing principal, and is being driven by an engine fifteen horse-power. The ventilating shaft has been divided into two compartments. One of these is used for ventilating purposes, and in the other a brick chimney has been built to convey the smoke, caused from the firing of the boiler placed at the bottom of the shaft, to the surface. This is a poor location for a boiler to be placed. Quantity of air circulating was five thousand two hundred and

fifty cubic feet, but the fan was not running on day of visit, and the ventilation was being produced by exhaust steam from the pumps. The fan ought to circulate twenty thousand cubic feet of air in such a mine. Drainage not as good as it ought to be for a new mine. Benjamin Esgar, mining-boss for No. 2; Herbert Edwards, mine-boss for No. 3.

Wise No. 2.

This is a shaft opening, employing twenty-five miners and four other laborers. The coal territory is not extensive at this mine, and, although but a new mine, it will soon be exhausted. Found the mine, as far as the ventilation and drainage are concerned, in good condition. Mine operated by the Snyder Coal Company. Henry Filer, mine-boss.

Rankin

Is a shaft located near Sharon, and operated by John F. Filer & Co. Gilfrad Wooten, mining-boss.

Number of miners employed, fifty-six, and eighteen other employés. Volume of air being circulated was three thousand five hundred cubic feet, which was fairly conducted to the face of workings. Exhaust steam was the motive power producing ventilation. All the entries were nearly to their boundary. Roads not in good condition.

Lackawannock

Is operated by the Pierce Coal Company. Archy McIntyre, mine-boss. This is the deepest shaft opening in the district, and employs about one hundred and twenty miners and fifteen other employés. Can produce three hundred tons of coal daily. Found the mine, as a whole, in a fair condition. Average air measurement was eight thousand cubic feet, which was fairly distributed to workings. At face of main heading measured three thousand cubic feet of air, but found air too far from face of one of the cross-entries. Have made a new hauling-road, which is quite an improvement over the old road. The workings are dry and comfortable for the men. Drainage excellent.

New Virginia

Employs eighty-six employés and ships about two hundred tons daily. Quantity of air in circulation was about eight thousand cubic feet at inlet and outlet. At head of main entry measurement showed two thousand cubic feet of air. The air was very well conducted to the workings. Some of the workings were wet, making it very disagreeable for some of the miners, but the roads and drainage were in a favorable condition. The miners had a splendid traveling-way by which to go into and out of the mine. S. Perkins & Co., operators. James Young, mine-boss.

Neshannock

Is a shaft opening and operated by the Neshannock Coal Company. Jacob Hedrich, mine-boss.

Number of employés forty-one, with a daily production of seventy-five tons. Quantity of air circulating through the mine two thousand six hundred cubic feet, produced by the exhaust steam from pumps. Roads and drainage in fair condition.

Hickory Slope.

Operated by Hazzard, Wood & Co. Frank Hazzard, superintendent. John Milson, mine-boss.

Number of employés sixty-three. Average quantity of air at inlet and outlet six thousand cubic feet. At face of main entry seventeen hundred and fifty cubic feet. Air somewhat defective at face of cross entries. The main entry is very wet, and entirely too much water on the road. A Cameron steam pump is placed on main entry, with the steam conducted in pipes to it from the boilers outside, a distance of five hundred and thirty yards. In the mine the steam pipes are placed along the side of main hauling road, which ought not to be the case. The ventilating furnace will soon fall down, owing to the arch of it being too flat. It ought to be rebuilt immediately or a fan erected instead. The mine is not in the condition it should be for a new mine.

Enterprise

Is a slope operated by Filer, Westerman & Co. Moses Jenkins, mine-boss. Number of miners employed, fifty-five, and fourteen other employés. Production, one hundred and fifty tons daily, and running very regular. Quantity of air at inlet, three thousand and twenty-five cubic feet, and at face of main entry, fifteen hundred cubic feet. This quantity of air is very well conducted to face of workings, but volume not large enough for such a mine. Ventilating power is a fire-lamp, and system of working single-entry. Drainage fair, and produced by a No. 11 Blake steam pump. The hoisting engine hauls from bottom of the swamp, a distance of four hundred and sixty-six yards.

MINES EXHAUSTED DURING THE TEN MONTHS.

Pacific slope, operated by Dunham, Roberts & Co., located in Mercer county. Home Bank No. 2, operated by Westerman & Co., Mercer county. Red Bank No. 1, operated by Alexander Reynold's Sons, Clarion county. Davidson, operated by W. B. Enos & Co., Lawrence county. Edinburg, operated by the Mahoning Valley Iron Company, Lawrence county. Pan-coast, operated by Frank Williams, Jefferson county.

NEW MINES OPENED.

Dagus Nos. 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, operated by the North-Western Mining and Exchange Company, Elk county. Walston Nos. 1 and 2, operated by Rochester and Pittsburgh Coal and Iron Company, Jefferson county. Sutliff shaft, operated by Filer, Westerman & Co., Mercer county. Trout shaft, operated by Trout, Filer & Co., Mercer county. Hall slope, located in Mercer county.

DESCRIPTION OF FATAL ACCIDENTS.

ACCIDENT No. 32.—Cyliston Ladzery, a miner, aged twenty-four years, was fatally injured on the 5th of February by a fall of coal in Eureka mine No. 2, at Houtzdale, Clearfield county. He and two other miners were working together on the night shift drawing room pillars, and had about completed mining the whole width of the pillar they were drawing, when a large portion of the mined coal fell upon the head and shoulders of Ladzery and injured him so severely that he died on the third day after being hurt. He was the only one of the three men that was mining when the coal fell. They neglected to set supports to the undercut coal. He was married, and leaves a wife but no children.

ACCIDENT No. 6.—David Craig, repairsman, aged thirty-two years, was instantly killed by fall of top clay while preparing a place to put in a set of timbers in a new drift, at the Clinton mines, on the 27th day of March. He, with two other miners, was opening a new drift on the south-east side of hill to connect it with an entry in one of the old drifts. This will be the hauling road over which the coal will be taken which is to be mined from an opposite hill. The three men had excavated to the proper depth to allow the setting up of the timbers, and while Craig was shoveling into a mine ear, the under-cuttings—the top clay—weighing about two tons, fell upon him. The men had made several attempts to bar down the clay shortly before the accident, but were unable to do so. He was unmarried, and a native of Scotland.

ACCIDENT No. 12.—Daniel Wohlfrandt, miner, aged fifty-seven years, was killed instantly by a fall of slate from roof, on the 26th day of March, while working in a room in West Moshannon mine at Houtzdale, Clearfield county. The company had only employed Mr. Wohlfrandt three days previous to the accident, and when shown his room by the mining-boss, he was requested to secure the roof with the props that had been taken to his place for that purpose. He promised to comply with the request, but like many others did not do it in time. He is a German, married, leaves a wife and four children.

ACCIDENT No. 15.—Barnard Murphy, miner, aged fifty-nine years, was killed by fall of coal April 25th, in Eureka mines No. 2, Houtzdale, Clearfield county. He and his son (aged fourteen years) had mined the coal nearly the width of their room to a depth of three feet the night previous, and before going home they fired a shot in coal but did not fall it, and on returning next morning to work he neglected to secure properly the shot coal, which was very loose. He put one prop under the coal carelessly, and he and son started to bear in, and had just begun to do so when nearly all of the undercut coal fell, with fatal results to father and injuring the son. He leaves a widow and large family.

ACCIDENT No. 18.—William Dixon, miner, aged eighteen, killed in Vietor mines No. 1, Clearfield county, by fall of coal, on the 1st day of May. He was working with an older brother drawing a room pillar, and was bearing

in, when a large lump of coal fell, crushing his head severely. He had a sprag set to coal, but as it was a thin cap used for setting with a prop, it did not serve the purpose of spragging loose coal; as they had both ends of coal supported by solid coal supports, they thought, no doubt, that the cap piece would be sufficient for the center. He is an American and unmarried.

ACCIDENT No. 17.—John Beveridge, miner, twenty-seven years of age, was fatally injured in Chestnut ridge mine, Mercer county, by a fall of rock from roof of an entry road, on the 15th of May. He and his partner, Mr. Brunton, were driving the entry, and were both out the entry road to second room parting for an empty car, and while Brunton was pulling the car out of room John Beveridge was standing on entry road, when the rock (weighing about six hundred-weight) fell upon his body, injuring him so badly that he died on the 22nd of same month. He was an American and single.

ACCIDENT No. 21.—John A. Yates, miner boy, was instantly killed by mine cars in Rochester mine, DuBois, Clearfield county, on the 19th of June. He left his father's room about noon to attend a trap-door for the half day on No. 5 main cross-heading, and while going out he attempted to pass a moving trip of two cars fifty yards from the door he was to attend; he stumbled and fell upon the traces of the mule which frightened it, causing the mule to run off with trip down the light grade at that point, carrying the boy along with it for about seventy-five yards. When the driver came down the grade, he found the boy lying dead about twenty-five yards past the door on the center of road, the trip of cars having passed over his body which was severely crushed. He was about fourteen years of age.

ACCIDENT No. 30.—Patrick Atkinson, miner, aged thirty-eight years, was fatally injured by a fall of top coal while drawing a room pillar in Ocean mine No. 1, Houtzdale, Clearfield county, on July 31. He risked too far under the top coal without securing it with props or taking it down. He is an Irishman and married, and leaves a wife and one child.

ACCIDENT No. 33.—Patrick Maloney, miner boy, fifteen years, was instantly killed by a fall of rock from roof on September 21, in Instanter mine No. 1, (new drift,) McKean county. He and his older brother Michael were working in a room, and at time of accident Michael was bearing-in while Patrick was shoveling out coal to car from far corner of the room which had been newly taken down from under the large stone that fell upon him. The stone was about six feet six inches long, two feet wide, and about two feet thick. The inside longitudinal fracture of stone was almost resting upon the solid coal and could not be seen, which no doubt deceived the boys. The room was very well propped, and all the witnesses testified at inquest that the accident might have happened to the most experienced and careful miner.

ACCIDENT No. 34.—Lawrence Campbell was instantly killed in Sterling

mine No. 2, Houtzdale, Clearfield county, by a fall of coal on the 17th of August. He was making a cross-cut through the pillar to next room, and was completing the last cut, which was a light one, being only eighteen inches thick on one side and two feet on the other, and was squaring up the last corner in the mining after having sheared the thin side of cut when the coal fell upon him. Mr. Doyle was passing the room at time Campbell was struck with the coal, and upon hearing him cry immediately ran to the rescue, but found the man dead when he got there. He was an old miner, and about sixty years of age. He leaves a widow but no children.

ACCIDENT No. 35.—Edward Woodward was instantly killed by fall of rock from roof, in one of the Sterling mines, Houtzdale, Clearfield, Pa., on the 21st of August. At his room parting a mine car left the track and knocked out a prop which was supporting the roof. He and his partner came out of the place to assist the driver to put the car on the track, and in the hurry none of the men examined the roof at the point where the prop had been knocked out, and immediately after the car was put on the roof fell, slightly injuring Woodward's partner and with fatal results to himself. He was but a few months in this country, and leaves a wife and four children in Cornwall, England. He was about forty-five years of age.

ACCIDENT No. 36.—James Cameron, miner, aged thirty-three years, was instantly killed by a fall of roof slate in an entry in Beech Tree mine, No. 2, at Beech Tree, Jefferson county. The roof fell at face of entry that John McLean and Cameron were driving. John McLean had been injured that day by slate falling upon him at the same place that Cameron sustained his fatal injuries later in the day. Before McLean went home he requested Cameron to secure the roof with a prop, but he informed McLean that he thought the roof would hang until he got the loose coal loaded that was under it. The mine foreman's assistant and a miner (George Harley) were in the entry between the time of McLean receiving his injuries and that of Cameron receiving his. They informed him to secure the roof as they considered it unsafe, and he promised them that he would do so. He neglected to do so and lost his life. Cameron was fully notified of his danger, but did not take the advice given. He leaves a wife and three children.

An inquisition indented and taken at Sterling, No. 2, in the county of Clearfield, the 17th day of August, in the year of our Lord 1883, before me, J. M. Lehman, one of the justices of the peace in and for the county aforesaid, upon the view of the body of Laurence Campbell, then and there lying dead, upon the oaths of Maurice P. Barron, Patrick Burns, Michael Lacy, John Scollins, John McGuire, and Thomas Knight, good and lawful men of the county aforesaid, who, being sworn to inquire on the part of the Commonwealth, when, where, how, and after what manner the said Laurence Campbell came to his death, do say on their oaths that the said Laurence Campbell came to his death on the 17th day of August, A. D. 1883, in Parnell mine, in the county aforesaid, by reason of a fall of coal falling

upon his person and crushing him to death. That no blame can attach either to the operators of said coal mine, or any of their employés. That the said Lawrence Campbell came to his death as above stated, and not otherwise.

In witness whereof, as well the aforesaid justice as the jurors aforesaid, have to this inquisition put our hands and seals on the day and year, and at the place first above mentioned.

J. M. LEHMAN, [SEAL.]

Justice of the Peace.

M. P. BARRON, [SEAL.]

PATRICK BURNS, [SEAL.]

MICHAEL LACEY, [SEAL.]

JOHN McGUIRE, [SEAL.]

THOMAS KNIGHT, [SEAL.]

JOHN COLLINS, [SEAL.]

STATE OF PENNSYLVANIA, }
Clearfield county, } ss:

An inquisition indented and taken at Sterling, in the county of Clearfield, the 21st day of August, in the year of our Lord 1883, before me, E. S. Davis, justice of the peace of the county aforesaid, upon the view of the body of Edwin Woodwards, then and there lying dead, upon the oaths of William McVay, James McGuire, Joseph Sharpless, John Brindle, Thomas Gorden, and James Staker, good and lawful men of the county aforesaid, who, being sworn to inquire, on the part of the Commonwealth, when, where, how, and after what manner the said Edwin Woodwards came to his death, do say upon their oaths, that it so happened, that accidentally, casually, and by misfortune, he, the said Edwin Woodwards, was working in the coal mine, and a fall of rock fell on him, he, the said Edwin Woodwards, then and there instantly died, and so the jurors aforesaid do say, and the said Edwin Woodwards, in manner and by the means aforesaid, accidentally, casually, and by misfortune came to his death, and not otherwise.

In witness whereof, as well as the aforesaid justice of the peace, as the jurors aforesaid have to this inquisition put their hands and seals on the day and year, and at the place first above mentioned.

E. S. DAVIS,

Justice of the Peace.

WM. McVAY, *Foreman*, [SEAL.]

JAMES McGUIRE, [SEAL.]

JOSEPH SHARPLESS, [SEAL.]

JOHN BRINDLE, [SEAL.]

THOMAS GORDEN, [SEAL.]

JAMES STAKER, [SEAL.]

TABLE I.—SHOWING LOCATION OF COLLIERIES IN THE THIRD BITUMINOUS MINE DISTRICT.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address.
Acharr, No. 1,	J. L. Turner,	Butler,	William D. James,	Hillard, Butler county.
Acharr, No. 2,	do.	do.	do.	do.
Burnett,	A. Burnett,	do.	George G. Stage,	Greenville, Mercer county.
Union coal and coke,	Union Coal and Coke Company, Limited,	do.	Pardoe, Mercer county.	Pardoe, Mercer county.
Barnes,	Mercer Mining and Manufacturing Company,	do.	Richard Lewis,	Hilliard, Butler county.
Allegheny,	Allegheny Coal Company,	do.	Frank Morrison,	Pardoe, Mercer county.
Logan,	Mercer Mining and Manufacturing Company,	do.	Richard Lewis,	Rock Point P. O., Beaver county.
Benham,	Scott & Co.,	Beaver,	L. S. Hoyt,	do.
Butt,	(Not running.)	do.	John Southerlin,	East Palestine, Ohio.
Beaver Block,	James Sutherland,	do.	James Clayton,	Beaver Falls, Beaver county.
Clayton,	James & W. F. Clayton,	do.	David Stinson,	do.
Davidson,	A. Davidson,	do.	John Hulmes,	do.
Hulmes,	John Hulmes,	do.	do.	do.
(Not running.)	(Not running.)	do.	do.	do.
Mansfield,	L. F. Mansfield,	do.	I. F. Mansfield,	Canneton, Beaver county.
Church Hill,	Church Hill Coal Company,	Clarion,	George Horner,	Monterey, Clarion county.
Fairmount, No. 2,	Fairmount Coal and Iron Company,	do.	S. Shaffer,	Fairmount City, Clarion county.
Hardscrabble,	Brady's Bend Mining Company,	do.	C. F. Hartwell,	Oil City, Venango county.
Hillville,	Pittsburgh Coal and Mining Company,	do.	S. L. Singley,	Catfish, Clarion county.
Long Run,	Fairmount Coal and Iron Company,	do.	S. Shaffer,	Fairmount City, Clarion county.
Mineral Ridge, Nos. 1 and 2,	Mineral Ridge Coal Company,	do.	C. W. H. Elche,	Monterey, Clarion county.
New Catfish,	Pittsburgh Coal and Mining Company,	do.	S. L. Singley,	Catfish, Clarion county.
Pine Run,	Stephenson & Mitchell,	do.	Thomas Mitchels,	East Brady, Clarion county.
Red Bank, No. 2,	Alexander Reynolds' Sons,	do.	David Reynolds,	Red Bank, Clarion county.
Sligo Branch,	S. Coon & W. G. Craig,	do.	S. Coon,	Elmersburg, Clarion county.
Cameron,	Cameron Coal Company,	Cameron,	A. C. Dancklemann,	Cameron, Cameron county.
Cascade,	Kaul & Hall,	Elk,	Andrew Kaul,	St. Mary's, Elk county.
Dagus, (eighteen mines,)	North-Western Mining and Exchange Co.,	do.	David Robertson, (assist.)	Dagns Mines, Elk county.
St. Mary's,	St. Mary's Coal Company,	do.	Joseph Patton, (assist.)	St. Mary's, Elk county.
Bucktail,	North-Western Mining and Exchange Co.,	do.	David Robertson,	Dagns Mines, Elk county.
Tannerdale,	St. Mary's Coal Company,	do.	Joseph Patton,	St. Mary's, Elk county.
Eureka slope,	Daniel Eldridge,	do.	Richard Eldridge,	Dagns Mines, Elk county.
Beechtree, Nos. 1 and 2,	Rochester, Pittsburgh Coal and Iron Co.,	Jefferson,	Richard Woodward,	St. Mary's, Elk county.
Hamilton,	Rochester Coal Company,	do.	Thomas E. Evans,	Philadelphia, 430 Walnut street.
Soldier Run,	Hamilton Coal Company,	do.	James Powers,	Beechtree P. O., Jefferson county.
Sprague,	Powers, Brown & Co.,	do.	do.	Reynoldsville, Jefferson county.
Washington,	do.	do.	do.	do.
Walston, Nos. 1 and 2,	Frank Williams,	do.	Frank Williams,	Pancoat, Jefferson county.
Beaver,	Rochester, Pittsburgh Coal and Iron Co.,	do.	John McCleavy,	Punxsutawney, Jefferson county.
Clinton,	Lee & Patterson,	Lawrence,	H. K. Hartstuf,	Rock Point, Beaver county.
Penn.,	Clinton Coal Company,	do.	A. W. Harblson,	do.
Pearson,	Penn. Coal Company,	do.	W. B. Enos,	New Castle, Lawrence county.
Riley,	New Castle Railroad Company,	d.,	George Pearson,	do.
Welsh,	(Not running.)	do.	do.	do.
Clermont,	do.	do.	do.	do.
Instantan, Nos. 1 and 2,	Buffalo Coal Company,	McKean,	J. H. Tate,	Clermont, McKean county.
	do.	do.	do.	do.

TABLE I.—THIRD BITUMINOUS MINE DISTRICT—Continued.

NAMES OF COLLIERIES.	Name of Company.	Location—County.	Name of Superintendent.	Post Office Address.
Atlantic,	Dunham, Roberts & Co.,	Mercer,	Warren Dunham,	Sharon, Mercer county.
Bethel,	Bethel Coal Company,	do.	Thomas Bailey,	do.
Chestnut Ridge,	Filer, Westernman & Co.,	do.	Enoch Filer, senior,	do.
Enterprise,	Filer & Westernman,	do.	do. do.	do.
Griffith slope,	Ormsby Coal Company,	do.	L. M. Ormsby,	Mercer, Mercer county.
Hickory shaft,	Hickory Coal Company,	do.	Enoch Filer,	Sharon, Mercer county.
Hickory slope,	Hazzard, Wood & Co.,	do.	Frank Hazzard,	Mercer, Mercer county.
Hall slope,	Jackson Coal Company,	do.	William Graham,	Jackson Centre, Mercer county.
Lackawannock,	Pierce Coal Company, Limited,	do.	Walter Pierce,	Sharpsville, Mercer county.
Neshannock,	Neshannock Coal Company,	do.	John Phillips,	Sharon, Mercer county.
New Virginia,	S. Perkins & Co.,	do.	S. Perkins,	do.
Ormsby,	Ormsby Coal Company, Limited,	do.	Frank Hazzard,	Mercer, Mercer county.
Pardoe,	Mercer Mining and Manufacturing Company,	do.	Richard Lewis,	Pardoe, Mercer county.
Rankin,	John F. Filer & Co.,	do.	Enoch Filer, senior,	Sharon, Mercer county.
Stoneboro', No. 2,	Mercer Coal and Iron Company,	do.	Benjamin F. Esgat,	Stoneboro', Mercer county.
Stutliff,	Do. do.	do.	Herbert Edwards,	do.
Sharon,	Filer, Westernman & Co.,	do.	Enoch Filer, senior,	Sharon, Mercer county.
Spears,	Sharon Coal Company,	do.	Morgan Hofus,	Grove City, Mercer county.
Trout,	Pine Grove Coal Company,	do.	James Spears,	do.
Craberry,	Trout, Filer & Co.,	do.	Enoch Filer,	Sharon, Mercer county.
Maple Grove,	Oil City and Ridgway Railroad Company,	Venango,	James Kennedy,	Ten-Mile Bottom, Venango county.
	S. P. McCalmont,	do.	Charles A. Kinney,	Raymliton, Venango county.

TABLE II.—*A statement showing the Characteristics, Number of Employés, Production, etc., of the respective Collieries in the Third Bituminous Mine District, for the year ending October 31, 1882.*

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi- Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners— men.	Number of miners— boys.	Other employees.	Total employees.	Number of mules in- side.	Number of mules out- side.	Number of loco- motive.	Total production of coal in tons.
Bucktail,	Bituminous,	Drift,	1	1	1	1	61	4	7	72	2	1	1	4,536
Beaver,	do.	do.	1	1	1	1	93	17	31	141	9	5	1	7,636
Benham,	do.	do.	1	1	1	1	95	15	14	124	8	1	1	9,550
Beechtree, No. 2,	do.	do.	1	1	20	1	200	10	25	235	11	1	1	10,931
Cascade,	do.	do.	1	1	1	1	79	12	12	103	4	1	1	2,800
Cameron,	do.	do.	1	1	1	1	20	2	4	26	2	1	1	9,950
Chestnut Ridge,	do.	Shaft,	2	1	35	3	41	5	7	51	4	2	1	8,100
Clermont,	do.	Drift,	1	1	1	1	15	2	7	24	2	1	1	21,304
Clinton,	do.	do.	1	1	1	1	51	10	16	77	6	2	1	2,500
Cody Ridge,	do.	do.	1	1	1	1	40	1	6	47	2	2	1	3,500
Colorado,	do.	do.	1	1	1	1	35	7	5	47	2	2	1	400
Columbia,	do.	do.	1	1	1	1	32	2	4	38	3	1	1	8,950
Cranberry,	do.	do.	1	1	1	1	19	2	2	23	2	1	1	14,900
Dixon,	do.	do.	1	1	1	1	53	3	7	63	4	1	1	202,505
Dixson,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	65,000
Decatur,	do.	do.	1	1	125	6	33	7	5	45	4	3	1	24,889
Dagus, No. 1,	do.	do.	1	1	30	6	33	7	5	45	4	3	1	20,000
Do. 5,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	80,775
Do. 7,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	3,500
Do. 8,	do.	do.	1	1	25	1	33	7	5	45	4	3	1	65,000
Do. 9,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	24,889
Do. 10,	do.	do.	1	1	100	3	33	7	5	45	4	3	1	20,000
Do. 11,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	80,775
Do. 12,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	3,500
Do. 13,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	65,000
Do. 14,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	24,889
Do. 15,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	20,000
Do. 20,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	80,775
Excelsior,	do.	do.	1	1	1	1	33	7	5	45	4	3	1	3,500
Eureka, (Elk county,)	do.	Slope,	1	1	40	2	84	15	9	108	3	1	1	65,000
Empire,	do.	Drift,	1	1	30	1	88	5	5	98	7	3	1	24,889
Eureka, (Clearfield county,)	do.	Drift,	1	1	1	1	274	14	27	315	19	9	1	20,000
Enterprise,	do.	Slope,	2	1	30	3	41	4	11	56	4	1	1	80,775

* The above is the aggregate for all the Dagus collieries. Separate reports for the several collieries were not furnished.

TABLE II.—Continued.

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi- Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners— men.	Number of miners— boys.	Other employees.	Total employees.	Number of mules in- side.	Number of mules out- side.	Number of loco- matives.	Total production of coal in tons.
Fairmount, No. 2.	Bituminous.	Drift.	..	..	..	..	130	10	15	155	10	3	1	46,060
Franklin.	do.	do.	..	..	..	..	125	8	38	172	21	1	1	11,100
Glennwood.	do.	do.	..	..	..	..	45	5	10	60	5	3	..	8,208
Hickory.	do.	Shaft.	..	1	40	2	27	1	11	39	2	..	..	2,000
Hickory.	do.	Slope.	1	2	60	..	39	16	12	57	3	..	..	9,000
Hamilton.	do.	Drift.	..	..	..	..	90	13	12	103	10	2	..	12,073
Hillville.	do.	do.	..	..	..	..	33	4	3	40	3	..	..	2,085
Hildrup.	do.	do.	..	..	..	..	78	22	16	116	9	3	..	..
Harrison.	Semi-bituminous.	do.	..	..	..	..	55	10	10	75	5	..	..	..
Hardscable.	do.	do.	..	..	..	..	81	10	14	105	6	..	..	20,500
Hulmes.	do.	do.	..	..	..	..	14	4	1	19	1	..	..	1,320
Instanter, No. 1, (new.)	do.	do.	..	..	..	..	38	5	12	54	3	1	..	23,862
Instanter, No. 1, (old.)	do.	do.	..	..	..	..	..	..	..	..	..	..	..	..
Instanter, No. 2.	do.	do.	..	..	..	..	47	13	12	72	3	..	..	31,045
Lancashire.	Bituminous.	do.	..	..	..	..	72	9	11	92	6	2	..	30,145
Lancashire.	do.	do.	..	..	..	..	43	8	8	59	6	3	..	26,666
Laurel Run.	do.	do.	..	..	..	..	100	5	15	120	4	..	1	29,319
Long Run.	do.	do.	6	1	40	6	120	22	16	153	7	2	..	11,738
Lackawannock.	do.	do.	..	..	..	..	32	..	9	41	6	..	..	..
Mapleton.	Semi-bituminous.	do.	..	..	..	..	43	1	10	60	9	1	..	7,300
Moshannon.	do.	do.	..	..	..	..	30	..	3	34	2	..	..	2,417
Mansfield.	do.	do.	..	..	..	..	20	3	8	32	2	1	1	6,481
Maple Grove.	do.	do.	..	1	30	2	30	4	8	42	1	..	..	13,919
Neshannock.	do.	do.	1	1	100	3	46	5	13	64	5	..	..	9,650
New Catfish.	do.	do.	2	1	40	3	50	25	9	84	2	..	..	25,232
New Virginia.	do.	do.	..	..	..	..	70	4	13	87	1	..	..	..
Ormsby.	do.	Shaft.	2	1	50	2	88	27	115	11	1	..	..	11,429
Pardoe.	do.	Drift.	..	..	..	..	9	4	5	18	2	..	..	2,240
Pancoast.	do.	do.	..	..	..	..	100	15	18	133	4	2	..	9,980
Pine Run.	do.	do.	..	..	..	..	29	12	5	46	4	2	..	13,085
Red Bank, No. 1.	do.	do.	..	..	..	..	36	22	16	74	3	..	..	8,875
Rankin.	do.	do.	3	1	50	3	37	16	11	64	2	..	..	43,502
Red Bank, No. 2.	do.	do.	..	..	..	..	135	22	24	181	15	..	..	..
Stoneboro', No. 2.	do.	Slope.	..	1	50	..	1	1	..	..	..	..	..	..
Stoneboro', No. 3.	do.	do.	2	2	65	2	52	6	10	68	3	..	..	22,036
Soldier Run.	do.	Drift.	..	..	..	..	100	10	8	118	11	..	..	..

Sprague, No. 1,	do.	90	4	15	109	6	106,536
Sterling, No. 1,	do.	242	43	42	327	32	1
Sterling, No. 2,	do.	112	17	17	136	7	47,679
St. Mary's,	do.	100	20	20	140	5	41,983
Sligo Branch,	do.	18	5	6	29	2	7,256
Washington,	do.	17	7	5	29	2	12,961
Webster, A.,	Slope,	93	32	17	142	11	3
Webster, B.,	do.	95	19	16	130	6	53,000
Webster, No. 2,	Shaft,	16	4	2	19	2	3

TABLE III.--*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Third Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Benham,	Furnace,	6'	x 3' 6"	15,382	4	.	42	42
Bucktail,	Furnace,	8 2	x 3 7	9,832	3	3	33	46
Beachtree, No. 1,	Fan,	6'	.	37,760	3	4	70	70
Beachtree, No. 2,	Fan,	6'	.	26,240	3	4	70	70
Beaver,	Furnace,	7	x 5	13,000	3	2	30	24
Bethel,	Exhaust steam, . . . . .	.	.	3,000	2	1	30	113
Church Hill,	Basket,	3	x 2	2,000	2	1	42	16
Cameron,	Furnace,	3	x 2 6	4,000	2	3	30	20
Cascade,	Furnace,	6	x 4	12,000	2	2	42	24
Clinton,	Furnace,	5	x 4	5,000	3	2	72	30
Clermont,	Furnace,	4	x 3	7,860	2	2	38	20
Cranberry,	Furnace,	4	x 3	3,000	2	2	20	12
Chestnut Ridge,	Exhaust steam, . . . . .	.	.	15,000	2	3	48	30
Dagus, Nos. 1 and 5,	Fan,	16'	.	16,000	4	.	.	.
Dagus, Nos. 8 and 9,	Furnace,	6	x 4	14,000	4	.	.	.
Dagus, No. 11,	Furnace,	4	x 3	7,000	2	.	.	.
Dagus, Nos. 13, 14, 15,	Furnace,	8	x 4 2	9,400	6	.	.	.
Dagus, No. 20,	Furnace,	8	x 4	7,560	2	.	.	.
Enterprise,	Basket,	3	x 2	3,500	2	2	42	24
Eureka Slope,	Furnace,	6	x 4	14,000	2	3	42	30
Fairmount, No. 2,	Furnace,	6	x 3 6	11,440	3	4	44	28
Griffith,	Fan,	10'	.	10,000	2	2	42	.
Hulmes,	Furnace, . . . . .	.	22 square ft.	6,500	2	.	27	16
Hardscrable,	Furnace,	3	x 4*	1,500	4	4	59	40
Hillville,	Natural, . . . . .	.	.	1,500	2	.	49	42
Hamilton,	Furnace,	6 2	x 4 3	16,000	3	4	80	30
Hickory Shaft,	Exhaust steam, . . . . .	.	.	5,000	2	.	.	.
Hickory Slope,	Furnace,	4	x 3 6	6,200	2	3	42	39
Instanter, No. 1,	Furnace,	4	x 4	8,400	2	2	42	24
Instanter, No. 2,	Furnace,	7	x 5	7,800	2	3	38	27
Jackson,	Furnace,	4 9	x 4 9	4,000	2	.	36	30
Lackawannock,	Exhaust steam, . . . . .	.	.	12,000	2	6	27	113
Mansfield,	Furnace, . . . . .	.	.	4,400	2	1	39	45
Maple Grove,	Furnace,	6	x 4	9,900	4	.	30	30
New Catfish,	Natural, . . . . .	.	.	6,100	2	1	35	42
New Virginia,	Exhaust steam, . . . . .	.	.	8,000	2	2	40	16
Neshannock,	Exhaust steam, . . . . .	.	.	2,550	2	2	30	17
Ormsby,	Fan,	8'	.	15,725	2	3	91	32
Pine Run,	Furnace,	6 6	x 3 6	9,000	2	2	42	35
Penn,	Furnace,	6	x 5	5,000	3	2	35	30
Pardoe,	Fan,	8'	.	15,700	3	3	40	36
Pearson,	Exhaust steam, . . . . .	.	.	2,500	2	1	42	24
Rankin,	Exhaust steam, . . . . .	.	.	3,500	2	1	30	113
Red Bank,	Natural, . . . . .	.	.	2,890	2	.	12	32
Sligo Branch,	Furnace,	6	x 3	2,200	2	1	30	20
St. Mary's,	Furnace,	5	x 4 6	14,700	2	2	43	43
Soldier Run,	Furnace,	6	x 3 6	8,640	3	1	35	35
Sprague,	Furnace,	6	x 5	7,200	2	2	49	48
Stoneboro' No. 2,	Furnace,	6 6	x 4 6	15,000	2	4	91	30
Stoneboro' No. 3,	Fan,	10'	.	16,800	2	3	40	42
Sharon,	Exhaust steam, . . . . .	.	.	3,460	2	2	80	32
Tannerdale,	Furnace,	4	x 4	3,000	2	1	42	24
Walston, No. 1,	Fan,	8'	.	.	.	.	.	.
Walston, No. 2,	Fan,	8'	.	.	.	.	.	.
Washington,	Furnace,	4	x 4	5,000	2	.	42	42
Wise, No. 2,	Exhaust steam, . . . . .	.	.	2,950	1	.	104	25

TABLE IV.—Showing an average monthly statement of the ventilation of the respective collieries in the Third Bituminous Mine District, for the year ending October 31, 1883.

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Beaver,	138	13,715	122	23,617	599	16,765	140	5,880	148	4,425	143	5,985	130	5,400	133	3,975	158	6,615
Cameron,	120	5,040	115	3,450	128	5,355	115	3,795	115	2,070	325	6,256	115	3,795	115	2,075	305	5,871
Clermont,	105	2,205	112	2,025	285	3,436	265	11,130	425	10,200	235	10,620	186	9,580	137	3,151	352	8,812
Cascade,	315	13,230	530	12,720	365	13,400	255	11,130	425	10,200	235	10,620	186	9,580	137	3,151	352	8,812
Chester Ridge,	173	8,280	150	6,000	165	5,940	250	11,251	240	13,200	221	12,169	130	5,400	133	3,975	158	6,615
Colorado,	249	11,233	241	13,255	222	12,189	250	11,251	240	13,200	221	12,169	130	5,400	133	3,975	158	6,615
Columbia,	244	9,750	183	8,212	563	11,375	300	6,000	100	3,000	300	3,600	135	6,000	200	3,000	400	4,800
Cranberry,	300	6,000	140	4,800	400	4,800	140	10,050	145	8,700	405	12,150	135	9,705	140	3,400	387	11,625
Clinton,	149	5,305	176	5,640	184	7,350	133	4,752	203	6,480	208	8,300	145	5,220	200	6,400	389	9,150
Cody Ridge,	149	5,305	176	5,640	184	7,350	133	4,752	203	6,480	208	8,300	145	5,220	200	6,400	389	9,150
Deerfoot,	149	5,305	176	5,640	184	7,350	133	4,752	203	6,480	208	8,300	145	5,220	200	6,400	389	9,150
No. 1 Dagus,	280	10,800	180	8,640	615	22,140	341	18,327	235	11,280	591	21,185	341	18,327	235	11,280	591	21,185
No. 5 Dagus,	293	12,285	285	11,400	363	12,687	305	12,810	278	11,100	404	14,181	243	18,882	195	9,555	325	11,700
No. 7 Dagus,	213	10,437	182	8,008	250	9,351	213	11,882	195	9,555	337	12,182	243	18,882	195	9,555	325	11,700
No. 8 Dagus,	213	10,437	182	8,008	250	9,351	213	11,882	195	9,555	337	12,182	243	18,882	195	9,555	325	11,700
No. 9 Dagus,	213	10,437	182	8,008	250	9,351	213	11,882	195	9,555	337	12,182	243	18,882	195	9,555	325	11,700
No. 10 Dagus,	213	10,437	182	8,008	250	9,351	213	11,882	195	9,555	337	12,182	243	18,882	195	9,555	325	11,700
Dixon,	280	10,800	180	8,640	615	22,140	341	18,327	235	11,280	591	21,185	341	18,327	235	11,280	591	21,185
Excelsior,	280	10,800	180	8,640	615	22,140	341	18,327	235	11,280	591	21,185	341	18,327	235	11,280	591	21,185
Empire,	280	10,800	180	8,640	615	22,140	341	18,327	235	11,280	591	21,185	341	18,327	235	11,280	591	21,185
Eureka,	213	10,437	182	8,008	250	9,351	213	11,882	195	9,555	337	12,182	243	18,882	195	9,555	325	11,700
No. 2 Fairmount,	213	10,437	182	8,008	250	9,351	213	11,882	195	9,555	337	12,182	243	18,882	195	9,555	325	11,700
Franklin,	194	6,751	130	3,380	360	21,600	194	6,751	130	3,380	335	20,100	243	18,882	195	9,555	325	11,700
Glenwood,	167	13,350	138	7,900	478	14,925	253	11,591	129	15,311	525	15,450	271	11,657	140	15,405	335	20,100
Hamilton,	90	3,520	100	3,000	150	3,000	253	11,591	129	15,311	525	15,450	271	11,657	140	15,405	335	20,100
Hickory Slope,	182	8,190	179	7,518	184	7,738	151	6,919	153	6,405	156	6,563	148	6,634	146	6,142	130	5,000
Hickory Shaft,	182	8,190	179	7,518	184	7,738	151	6,919	153	6,405	156	6,563	148	6,634	146	6,142	130	5,000
Hillville,	182	8,190	179	7,518	184	7,738	151	6,919	153	6,405	156	6,563	148	6,634	146	6,142	130	5,000

TABLE IV.—VENTILATION OF COLLIERIES—Continued.

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Hildrup,	294	14,088	188	9,012	338	16,236	302	14,448	179	8,380	359	17,220	290	13,740	169	8,136	348	17,680
Harrison,	113	4,275	73	2,682	195	4,095	113	4,275	73	2,682	195	4,095	113	4,275	73	2,682	195	4,095
Hardscable,	110	4,235	105	2,205	250	6,750	115	4,427	103	2,152	235	6,845	115	4,427	120	2,550	243	6,547
No. 1 Instantier,	228	6,725	210	4,410	243	8,487	228	6,825	210	4,410	230	8,050	235	7,050	220	4,620	250	8,750
No. 2 Instantier,	208	8,000	143	5,000	500	10,000	161	6,772	325	11,600	163	6,825	161	6,772	115	400	450	9,000
Lancashire,	225	12,000	200	9,000	230	10,120	216	12,110	199	8,844	254	10,255	345	11,730	365	13,140	290	11,600
Long Run,	116	8,360	93	3,330	173	8,280	70	7,704	163	3,690	163	7,800	112	8,044	85	3,000	160	7,680
Laurel Run,	65	4,698	301	3,615	143	4,275	69	4,968	308	3,690	149	4,463	65	4,698	93	2,790	340	10,200
Moshannon,	176	7,931	174	7,287	179	8,032	186	8,343	185	7,760	188	7,886	199	8,977	193	8,337	203	8,547
Mapleton,	690	26,390	176	26,400	733	26,388	198	18,000	75	1,200	1,065	17,000	567	22,680	907	22,675	630	22,661
Maple Grove,	131	5,512	107	4,837	135	5,670	129	5,407	106	4,781	129	5,408	124	5,197	100	4,500	124	5,197
Neshannock,	104	7,062	97	4,541	98	5,982	104	7,046	97	4,549	107	6,250	180	7,560	88	3,675	158	5,513
New Catfish,	228	2,737	236	8,577	314	11,934	295	13,275	289	8,667	314	11,948	67	8,010	288	8,698	49	1,594
New Virginia,	293	13,162	286	8,577	314	11,934	295	13,275	289	8,667	314	11,948	281	13,331	288	8,698	314	11,933
Ormsby,	294	47,580	192	16,900	266	55,920	151	5,436	146	3,510	250	6,000	296	43,572	201	18,850	259	48,225
Pardoe,	358	30,086	148	15,665	342	29,385	145	11,877	143	1,175	546	16,387	179	12,210	139	12,477	581	21,173
Pancast,	151	12,083	186	14,717	576	17,288	134	5,639	181	7,225	230	5,750	153	5,490	113	2,700	232	6,277
Pine Run,	160	5,760	146	3,512	294	6,950	151	5,436	146	3,510	250	6,000	134	5,490	113	2,700	232	6,277
No. 1 Red Bank Furnace,	128	5,334	181	7,250	230	5,651	145	11,877	143	1,175	546	16,387	179	12,210	139	12,477	581	21,173
No. 2 Red Bank Furnace,	158	13,238	122	16,584	321	11,241	104	1,800	98	1,764	150	2,700	163	13,967	181	5,400	428	13,680
Rankin,	302	14,496	300	12,600	300	14,400	302	14,496	300	12,600	300	14,400	305	14,664	302	12,705	303	14,508
No. 1 Sterling,	128	5,334	181	7,250	230	5,651	145	11,877	143	1,175	546	16,387	179	12,210	139	12,477	581	21,173
No. 2 Sterling,	151	12,083	186	14,717	576	17,288	134	5,639	181	7,225	230	5,750	153	5,490	113	2,700	232	6,277
No. 2 Stoneboro',	160	5,760	146	3,512	294	6,950	151	5,436	146	3,510	250	6,000	134	5,490	113	2,700	232	6,277
Sligo Branch,	128	5,334	181	7,250	230	5,651	145	11,877	143	1,175	546	16,387	179	12,210	139	12,477	581	21,173
No. 3 Stoneboro',	158	13,238	122	16,584	321	11,241	104	1,800	98	1,764	150	2,700	163	13,967	181	5,400	428	13,680
Soldier Run,	302	14,496	300	12,600	300	14,400	302	14,496	300	12,600	300	14,400	305	14,664	302	12,705	303	14,508
St. Mary's,	128	5,334	181	7,250	230	5,651	145	11,877	143	1,175	546	16,387	179	12,210	139	12,477	581	21,173
Sharon,	151	12,083	186	14,717	576	17,288	134	5,639	181	7,225	230	5,750	153	5,490	113	2,700	232	6,277
St. Mary's,	160	5,760	146	3,512	294	6,950	151	5,436	146	3,510	250	6,000	134	5,490	113	2,700	232	6,277

Sligo,	Sam eas Sli go B ranch.	155	7,444	154	7,530	144	6,955	154	7,380	167	8,177	153	14,040	163	7,800
Sprague,	155	7,595	148	14,160	155	7,444	154	7,380	167	8,177	153	14,040	163	7,800	
Webster, (A,)	266	11,981	210	8,820	563	16,875	265	11,925	210	8,400	556	16,650	555	16,650	
Webster, (B,)	253	12,955	181	7,250	630	13,560	281	12,838	183	7,665	638	18,495	685	18,495	
Wise, . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	110	5,005	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	93	2,280
West Moshannon, . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	482	19,250
Washington,	133	5,565	102	4,612	134	5,617	130	5,460	105	4,725	130	5,460	126	5,302	

TABLE IV.--VENTILATION OF COLLIERIES--Continued.

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Beaver.	300	6,000	100	2,000	400	6,000	275	5,500	100	1,500	400	6,000	300	6,000	100	2,000	300	3,600
Cameron.	118	2,467	118	2,115	313	5,963	115	3,795	115	2,070	325	6,256	112	3,712	112	2,025	292	5,620
Cranberry.																		
Glenmont.	175	9,800	168	6,065	225	10,450	172	9,080	139	5,010	193	8,085						
Cascade.																		
Chester Ridge.																		
Colorado.																		
Columbia.																		
Clinton.	132	9,480	129	11,475	129	11,480	143	10,255	134	8,025	330	11,700	141	10,155	132	7,950	383	11,625
Cody Ridge.																		
Dagus, No. 1,	130	5,700	165	9,750	146	6,550	222	8,556	217	3,262	325	8,125	147	5,162	185	2,775	132	5,962
Dagus, No. 5,	333	9,975	170	6,545	410	10,045	300	9,000	185	7,406	350	9,800	312	9,375	292	10,580	362	10,140
Dagus, No. 7,	213	6,375	143	4,275	328	5,895	240	7,220	220	7,920	380	5,940						
Dagus, No. 8,	265	6,765	162	3,075	298	8,817		6,682	92	1,665	208	7,481	92	2,775	75	1,875	195	3,412
Dagus, No. 9,	295	8,850	90	1,890	458	8,016	213	9,450	215	7,325	245	4,257	160	4,800	112	2,362	182	3,194
Dagus, No. 10,													170	5,610	150	3,400	180	3,400
Dagus, No. 11,													250	9,000	200	7,200	200	3,500
Dagus, No. 12,													110	3,680	120	3,600	200	3,500
Dagus, No. 13,																		
Dixon.	220	9,625	150	7,200	200	9,000	270	13,230	200	8,800	250	13,125						
Decatur.	150	6,624	130	5,248	130	6,560	788	28,350	612	33,687	825	33,000						
Eureka Slope, (Elk.)							215	10,800	150	4,050	215	10,400						
Excelsior.	385	20,790	287	12,075	663	23,850	385	18,060	267	11,235	649	23,355						
Empire.	283	12,127	294	11,750	308	12,300												
Eureka.							375	17,047	200	10,530	361	17,514						
Fairmount, No. 2,	405	19,845	130	9,310	600	21,600	130	6,000	100	3,000	240	6,000						
Franklin.	292	28,304			545	32,700	287	27,995			552	33,120						
Glenwood.																		
Gleekory Shaft.					200	5,000					200	5,000					250	5,000

Hardserable,	98	5 752	52	4 980	100	4 000	105	6 000	55	5 000	105	4 200	99	5 827	57	5 460	102	4 100
Hamilton,	262	11 680	128	14 106	527	15 925	273	11 889	145	13 405	535	16 050	289	12 000	143	15 675	535	16 050
Hickory Slope,													160	6 240	70	1 750	190	5 510
Hiltville,													250	7 031	162	6 794	139	0 678
Hildrup,	307	15 250	175	8 400	355	17 040	165	7 002	165	6 436	156	6 562	163	12 180	163	7 900	235	11 160
Harrison,													112	2 025	105	2 205	227	6 142
Instantier, No. 1,	118	4 524	115	2 415	243	6 447	115	4 427	118	1 297	250	6 750	292	5 620	205	4 355	230	8 053
Instantier, No. 2,	215	6 450	213	4 567	235	8 225	205	6 490	223	4 672	212	8 437	292	5 620	205	4 355	230	8 053
Laurel Run,	370	12 580	425	15 300	575	23 000	184	16 585	538	19 350	400	24 000	33	6 000	656	23 625	606	24 250
Lauchshire,													171	6 000	114	4 000	260	8 000
Long Run,	131	6 772			162	6 825	165	8 258	141	7 065	147	8 087	190	9 531	181	9 031	171	9 435
Lackawannock,													102	7 330	75	2 705	140	6 720
Mapleton,	93	6 720	95	3 420	165	7 920	118	8 407	90	3 240	173	8 250	80	2 400	70	1 225	140	2 450
Maple Grove,	313	9 375	113	3 393	351	10 515	220	12 000	200	9 000	235	10 340	80	2 400	70	1 225	140	2 450
Moshannon,													80	2 400	70	1 225	140	2 450
Neshannock,	70	5 004	275	3 825	164	4 912	80	2 400	60	1 050	150	2 625	80	2 400	70	1 225	140	2 450
New Catfish,	201	9 045	108	8 337	210	6 000	180	8 100	177	7 413	182	7 623	80	2 400	70	1 225	140	2 450
New Virginia,													186	17 250	100	3 000	900	9 000
Ormsby,	327	13 000	200	6 000	425	13 000	134	14 000	100	1 400	800	13 600	460	18 600	719	17 975	517	13 594
Pardoe,	466	13 050	746	13 644	513	13 648	456	18 250	730	18 250	507	18 243	100	2 100			100	2 000
Pancoast,													101	1 209			77	2 502
Pine Run,													101	1 209			77	2 502
Red Bank, No. 1,	63	750			82	2 665	111	1 355	246	7 388	78	2 340	276	12 409	270	8 114	297	11 435
Red Bank, No. 2,	262	11 812	277	8 309	305	11 595	278	11 521	246	7 388	297	11 443	202	31 480	207	17 770	312	23 400
Rankin,	233	36 042	221	17 700	247	39 102	236	37 437	91	13 300	278	41 705	202	31 480	207	17 770	312	23 400
Sterling, No. 1,	293	20 480	178	15 640	285	23 365	265	19 575	173	13 800	275	21 400	200	13 000	219	16 680	381	17 437
Sterling, No. 2,	292	17 204	158	15 990	531	17 483	203	13 700	222	17 977	595	17 850	180	13 331	219	16 680	381	17 437
Stoneboro', No. 2,	215	5 375	153	9 630	148	6 195	659	16 469	385	16 270	324	16 537	660	16 500	375	11 293	411	17 272
Stoneboro', No. 3,	292	17 204	158	15 990	531	17 483	203	13 700	222	17 977	595	17 850	180	13 331	219	16 680	381	17 437
Stoneboro', No. 4,	215	5 375	153	9 630	148	6 195	659	16 469	385	16 270	324	16 537	660	16 500	375	11 293	411	17 272
Sprague,	194	9 332	152	14 725	184	8 820	159	13 541	155	14 930	270	14 960	184	13 050	149	14 365	295	12 720
Soldiers' Run,	151	13 725	153	14 000	445	13 350	164	13 807	140	12 300	461	14 857	147	12 320	138	12 103	335	12 425
Sligo Branch,	123	7 960	73	3 510	234	6 810	123	4 410	143	3 540	233	5 550						
Sharon,																		
St. Mary's,																		
Webster, (A.),																		
Webster, (B.),																		
Wise, No. 2,					200	5 000	270	12 420	175	700	685	18 495						
West Moshannon,					223	5 451					129	3 152						
Washington,							115	4 930	85	3 825	115	4 830	105	4 410	82	3 712	105	4 410

TABLE IV.—VENTILATION OF COLLIERIES.—Continued.

NAME OF COLLIERY.	JULY.							AUGUST.							SEPTEMBER.						
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.				
Beaver,	331	15,716	200	11,000	525	15,750	377	15,855	267	4,922	386	15,382	15,855	267	4,922	386	15,382				
Benham,	250	5,000	150	4,800	150	5,000	185	5,995	275	4,500	274	9,832	5,995	275	4,500	274	9,832				
Bucktail,	110	3,630	110	1,980	300	5,775	120	3,960	110	3,630	120	3,960	3,960	110	3,630	120	3,960				
Cranberry,	155	5,783	330	6,534	160	6,400	137	9,840	134	8,210	400	12,000	9,840	134	8,210	400	12,000				
Clermont,	180	5,328	560	8,400	370	10,360	202	6,682	235	7,050	305	7,045	6,682	235	7,050	305	7,045				
Clinton,	65	2,145	50	1,850	50	1,850	127	4,207	55	1,650	105	2,362	4,207	55	1,650	105	2,362				
Dagus, No. 1,	175	5,775	80	1,920	125	4,375	107	3,607	145	2,610	245	5,800	3,607	145	2,610	245	5,800				
Dagus, No. 5,	135	4,050	105	1,800	200	7,000	156	4,668	132	3,168	191	5,737	4,668	132	3,168	191	5,737				
Dagus, No. 8,	190	6,270	175	3,312	215	5,912	60	1,800	142	2,555	124	3,906	1,800	142	2,555	124	3,906				
Dagus, No. 9,	380	12,528	235	6,415	250	9,000	90	3,240	140	1,400	150	1,370	3,240	140	1,400	150	1,370				
Dagus, No. 10,	380	12,528	235	6,415	250	9,000	60	2,160	180	3,780	185	3,700	2,160	180	3,780	185	3,700				
Dagus, No. 11,	215	6,270	175	3,312	215	5,912	224	7,392	230	5,635	165	4,950	7,392	230	5,635	165	4,950				
Dagus, No. 12,	215	6,270	175	3,312	215	5,912	215	6,000	240	6,000	15 680		6,000	240	6,000	15 680					
Dagus, No. 13,	312	11,871	125	15,487	535	16,050	215	10,320	165	4,930	320	15 680	10,320	165	4,930	320	15 680				
Dagus, No. 14,	312	11,871	125	15,487	535	16,050	215	10,320	165	4,930	320	15 680	10,320	165	4,930	320	15 680				
Dagus, No. 15,	312	11,871	125	15,487	535	16,050	215	10,320	165	4,930	320	15 680	10,320	165	4,930	320	15 680				
Dagus, No. 20,	312	11,871	125	15,487	535	16,050	215	10,320	165	4,930	320	15 680	10,320	165	4,930	320	15 680				
Decatur,	638	22 950	625	34,375	944	37,750	250	10,375	160	7,680	250	12 740	37,750	160	7,680	250	12 740				
Dixon,	100	4,600	60	1,800	200	5 000	130	6,000	100	3,000	240	6,000	6,000	100	3,000	240	6,000				
Enterprise,	233	11,160	168	4,522	320	15,680	320	15,680	432	15,570	312	11,871	15,680	432	15,570	312	11,871				
Eureka Slope,	235	16 320	300	14 700	432	15,570	312	11,871	125	15,487	535	16,050	15,570	125	15,487	535	16,050				
Excelsior,	314	15,374	279	13,695	442	21,652	312	11,871	125	15,487	535	16,050	15,374	279	13,695	442	21,652				
Fairmount, No. 2,	231	11 510	140	15,336	525	15,750	312	11,871	125	15,487	535	16,050	15,336	140	15,336	525	15,750				
Hamilton,	97	5,729	55	5,280	111	4 425	312	11,871	125	15,487	535	16,050	5,729	55	5,280	111	4 425				
Hardscrabble,	248	11,880	160	7,680	268	13,270	312	11,871	125	15,487	535	16,050	11,880	160	7,680	268	13,270				
Hildrup,	248	11,880	160	7,680	268	13,270	312	11,871	125	15,487	535	16,050	11,880	160	7,680	268	13,270				
Hickory Shaft,	248	11,880	160	7,680	268	13,270	312	11,871	125	15,487	535	16,050	11,880	160	7,680	268	13,270				
Hillville,	248	11,880	160	7,680	268	13,270	312	11,871	125	15,487	535	16,050	11,880	160	7,680	268	13,270				
Hulmes,	248	11,880	160	7,680	268	13,270	312	11,871	125	15,487	535	16,050	11,880	160	7,680	268	13,270				
Instantan, No. 1,	112	4 331	105	2,205	223	6,007	140	6 322	137	5,775	142	5,964	2,205	105	2,205	142	5,964				
Instantan, No. 2,	190	5,700	183	3,837	223	7,757	220	4,200	190	6,840	250	8,730	5,700	183	3,837	223	7,757				

Instantan., No. 1, (new drift.)	270	5,670	210	6,300	300	7,200	442	11,612	412	12,098
Lancashire, No. 1,	171	6,000	100	4 000	400	8 000	279	13,937	264	13 185
Lower Hillville,	155	6,975	154	6,478	154	6,478	279	13,937	264	13 185
Lackawannock,	226	11,319	217	10,844	204	11,206	100	3,850	700	4 250
Laurel Run,	617	20,967	617	22,200	867	34,965	75	2,250	150	2,025
Mansfield,	103	7 404	197	7,092	160	7,680	150	2,025	300	8,000
Maple Grove,	80	2,400	60	1,050	300	8,000	150	2,025	300	8,000
Mapleton,	200	18,200	100	3,000	700	19,600	150	2,025	300	8,000
Neshannock,	115	4,830	85	3,825	115	4 830	150	2,025	300	8,000
New Virginia,	95	1,143	275	8 253	304	11,357	150	2,025	300	8,000
New Catfish,	278	12 499	152	14,635	280	13,440	150	2,025	300	8,000
Ormsby,	144	13 794	152	14,635	280	13,440	150	2,025	300	8,000
Pancost,	156	15 653	234	19 429	394	17,813	150	2,025	300	8,000
Pine Run,	659	16 465	383	12 240	415	17 430	150	2,025	300	8,000
Red Bank,	241	33,531	194	17,095	246	36 862	150	2,025	300	8,000
Rankin,	128	21 020	208	16 600	274	23,552	150	2,025	300	8,000
Sprague,	302	14,496	305	12 810	303	14,520	150	2,025	300	8,000
Stoneboro', No. 2,	169	14 157	138	12 100	375	15 060	150	2,025	300	8,000
Stoneboro', No. 3,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
Stoneboro', No. 1,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
Sterling, No. 1,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
Sterling, No. 2,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
Sligo Branch,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
St. Mary's,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
Soldier Run,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
Washington,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000
Wise, No. 2,	115	4 830	47	3,937	115	4 830	150	2,025	300	8,000

TABLE IV.—VENTILATION OF COLLIERIES—Continued.

NAME OF COLLIERY.	OCTOBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Beechtree, No. 2,	537	32,250	12	600	499	34,912
Benham,	330	15,960	360	15,120	360	15,120
Bucktail,	210	7,200	250	6,750	195	9,165
Cameron,	140	5,880	147	4,425	142	5,955
Clinton,	136	9,780	125	7,500	390	11,700
Clermont,	117	3,877	120	3,600	317	6,035
Dagus, No. 1,	190	7,980	330	5,940	170	7,650
Dagus, No. 5,	200	6,000	340	8,130	300	8,400
Dagus, No. 8,	115	3,800	150	3,600	200	5,000
Dagus, No. 9,	100	3,000	90	2,700	90	2,160
Dagus, No. 10,	100	6,000	200	4,760	215	5,370
Dagus, No. 11,	120	3,300	150	3,150	120	3,600
Dagus, No. 13,	40	1,440	60	1,440	60	1,440
Dagus, No. 14,	90	3,240	130	3,510	120	2,880
Dagus, No. 15,	60	2,160	180	3,780	100	3,200
Dagus, No. 20,	300	10,800	200	8,300	100	11,400
Hickory Shaft,					200	5,000
Hillville,	128	5,817	126	5,313	133	5,576
Instanter, No. 1, (new,)	207	6,847	120	3,600	317	8,100
Instanter, No. 1, (old,)	117	4,563	285	9,405	130	3,510
Instanter, No. 2,	117	3,525	250	5,670	255	8,925
Lackawannock,	244	12,187	244	12,187	225	12,377
Mansfield,	97	3,783	637	4,125	92	4,232
New Catfish,	134	5,668	231	9,723	138	5,817
Neshannock,	80	2,400	65	1,105	155	2,635
New Virginia,					250	7,000
Red Bank, No. 2,	151	1,812			88	2,920
Rankin,	282	12,713	285	8,541	326	11,722
Stoneboro', No. 2,	191	12,980	177	13,060	600	18,000
Stoneboro', No. 3,	650	16,250	400	12,800	390	16,880
Sligo Branch,	87	2,625	81	1,950	146	3,510
St. Mary's,	302	14,520	305	12,831	309	14,832
Wise, No. 2,					124	3,075

LIST OF ACCIDENTS occurring in the Mines of the Third Bituminous Coal District of Pennsylvania for the year ended Oct. 31, 1883.

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of Investigation.	Nature and Cause of Accident.
Jan. 15	Samuel Syher,	35	Married, . .					Hand crushed by fall of coal in Empire mine, Clearfield county.
18	Harry Jensen,	30	Married, . .					Rib broken by fall of coal in Empire mine, Clearfield county.
5	W. P. Barnes,	40	Married, . .					Foot crushed between the bumpers of locomotive at Pardoe mine, Mercer county.
14	Frank Strable,	18	Single, . .					Foot crushed by fall of slate in Pardoe mine.
Feb. 27	William Robinson,	32	Married, . .					Leg broken by fall of coal in Ormsby mine.
Mar. 27	David Craig,	32	Single, . .					Killed by fall of clay while putting in a new drift at Clinton colliery, Lawrence county.
7	My Greer,	16	Single, . .					Hurt by fall of coal, Excelsior mines, Clearfield.
14	S. Eckler,	32	Married, . .					Collar-bone broken, Excelsior mines, Clearfield.
27	Samuel Welsh,	22	Married, . .					Injured by train of mine cars, Excelsior mine.
19	Henry Bloom,	31	Married, . .					Injured by fall of coal in Sprague mines, Jefferson county.
20	Patrick Hanley,	20	Single, . .					Leg broken between mine cars in Sterling mine, Clearfield county.
	Daniel Wolfbrandt,	57	Married, . .					Killed by fall of slate in West Moshannon mine, Clearfield county.
April 9	Edward Everal,	14	Single, . .					Thigh broken by being caught between mine car and coal rib in Stoneboro' mine, No. 3, Mercer county.
	John Dougherty,	12	Single, . .					Arm broken by mine cars in Sterling mine, No. 1, Clearfield county.
25	Bernard Murphy,	59	Married, . .	2			Apr. 25	Killed by fall of coal while mining in Eureka mine, No. 2, Clearfield county.
25	— Murphy,	14	Single, . .					Body bruised by fall of coal in Eureka mine, No. 2, Clearfield county.
May 15	John Beveridge,	26	Single, . .				May 17	Fatally injured by a fall of rock from roof in Chestnut Ridge mine, operated by Westerman, Filler & Co., and located in Mercer county.
1	William Dixon,	18	Single, . .				May 2	Killed instantly by fall of coal while mining in Victor mine, No. 1, Clearfield county. Mine operated by Victor Coal Company.
June 27	Peter Burt,		Married, . .					Foot injured by fall of stone in Clermont mine, McKean county.

LIST OF ACCIDENTS—Continued.

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
June 30	William Dougherty,	14	Married,	1	.....	.....	.....	Injured in Webster mine, Houtzdale, Clearfield county.
19	John A. Gates,	14	Single,	1	.....	.....	June 27	Killed instantly by mine cars in Rochester mine, Clearfield county.
July 24	Samuel B. Williams,	19	Single,	1	.....	.....	.....	Leg injured by fall of coal in Dixon mine, Clearfield county.
13	Allen McConnell, . . . . .	.....	Married,	1	.....	.....	.....	Had leg broken by fall of coal while working in Enterprise mine, Mercer county.
14	P. G. Pierson,	24	Single,	1	.....	.....	.....	Injured by fall of coal in the Sterling, No. 1, mine Clearfield.
18	Anthony Commy,	18	Single,	1	.....	.....	.....	Collar-bone broken by mine cars in the Sterling mine, Clearfield county.
12	John Dougherty,	12	Single,	1	.....	.....	.....	Injured by mine cars in the Sterling mine, No. 1, Clearfield county.
12	David Evans,	12	Single,	1	.....	.....	.....	Lost a toe by mine cars in Sterling mine, No. 2, Clearfield county.
12	John Dougherty,	13	Single,	1	.....	.....	.....	Foot injured by mine cars in Sterling mine, No. 2, Clearfield county.
12	Richard Morgan,	35	Married,	1	.....	.....	.....	Collar-bone and arm broken in Sterling mine, No. 2, Clearfield county.
21	James St. Clair,	35	Married,	1	.....	.....	.....	Leg broken by a fall of bone-coal in Pine Run mine, Clarion county.
31	Patrick Atkinson,	38	Married,	1	.....	.....	.....	Was fatally injured by fall of top coal in Ocean mine, No. 1, Clearfield county.
Aug. 25	John Saunson,	35	Single,	1	.....	.....	.....	Burnt by powder in Instantner mine, McKean county.
17	Lawrence Campbell,	60	Married,	1	.....	.....	.....	Killed by fall of coal in Sterling mine, No. 2, Clearfield county.
21	Edward Woodward,	45	Married,	4	.....	.....	.....	Killed in Sterling mine by fall of roof.
Sept. 21	Patrick Maloney,	15	Single,	1	.....	.....	Sept. 27	Killed by fall of rock from roof in Instantner, No. 1, new drift, McKean county.
Oct. 17	James Cameron,	33	Married,	3	.....	.....	Oct. 23	Killed by fall of slate in Beechtree mine, No. 2, Jefferson county.
28	August Carlson, . . . . .	.....	Married,	1	.....	.....	.....	Back hurt by a fall of slate in Instantner mine, McKean county.

FOURTH DISTRICT.

J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania*:

SIR: In accordance with the provisions of the ventilation law, as recently amended, calling for the reports of the mine inspectors of the bituminous regions, I have the honor herewith to transmit my report for the ten months ending October 31, 1883, of the condition and production of the mines in the Fourth District, now comprising the counties of Bradford, Blair, Centre, Clinton, Huntingdon, Lycoming, Potter, Tioga, and Sullivan, Cambria county having been placed in the new Fifth District.

In response to the circulars sent out calling for the returns showing production, number of men employed, &c., during the ten months, the responses have been very generous, and the table accompanying this will be found to be as nearly accurate as possible. Last year the number of mines was ninety, this year the number is fifty-six, owing to Cambria county being cut off, consequently the production of coal in this district is not near so much as the corresponding period of last year.

New avenues for bringing coal to market are being opened. During the year the Addison and North Pennsylvania Railroad Company have built a narrow-gauge road from Addison on the New York, Lake Erie and Western railroad to the mines operated by the Gaines Coal and Coke Company in Gaines township, Tioga county. The Beech Creek, Clearfield and South-western railroad is expected to be finished so as to carry coal by the first of April, and this road will open the extensive coal fields lying west of Snowshoe, Centre county, and also a large territory in Clearfield county. The Keating and Karthaus railroad, extending from Keating on the Philadelphia and Erie railroad to Karthaus, Clearfield county, will open quite a large coal field in that section of country.

The condition of the mines during the year has, on the whole, been good, and the companies operating the large mines have endeavored to do what is right and proper in regard to ventilating their mines; but with some of the small operators there is more or less trouble in getting them to conform to the mining laws and to keep their mines in working shape.

The total number of accidents for the ten months was thirty-three, eight of which resulted fatally, and will be more fully explained in another part of the report. The production of coal for the same time is estimated at 2,320,000 tons, and will, I think, be nearly correct.

From the circulars received I have made out the following table:

Number of mines in the district,	56
Number of persons employed inside,	4,128
Number of persons employed outside,	976
Total number of persons employed,	5,104

Number of mules, inside and outside,	444
Number of fatal accidents,	8
Number of non-fatal accidents,	26
Production in tons, (2,000 pounds each,)	2,320,000
Number of tons per fatal accident,	290,000
Number of tons per non-fatal accident,	89,230
Average number of days worked during the year,	188
Average price paid per ton for mining,	55 cents.
Number of coke ovens in the district,	661

Accompanying this report will be found a map of the Blair Iron and Coal Company's mine at Bennington, also a plan showing plane, trestles, &c., of the same work. These were kindly furnished by Mr. John Fulton, general mining engineer of the Cambria Iron Company.

Mr. F. F. Lyon, general manager of the Towanda Coal Company, has also furnished a map of No. 3 mine at Barclay, Bradford county.

Very respectfully yours,

ROGER HAMPSON.

TOWANDA, *December 22d, 1883.*

EXAMINATION OF MINES.

Barclay Mines.

These mines are owned and operated by the Towanda Coal Company and have worked steadily during the past year. Two of the four mines are nearly all pillar work, but will last for a considerable time. In the other two mines there is a large body of solid coal yet unworked. The mines at present are producing at least one thousand tons of coal per day. Condition of mines good, both as regards ventilation and drainage. F. F. Lyon, general manager.

Long Valley Mine.

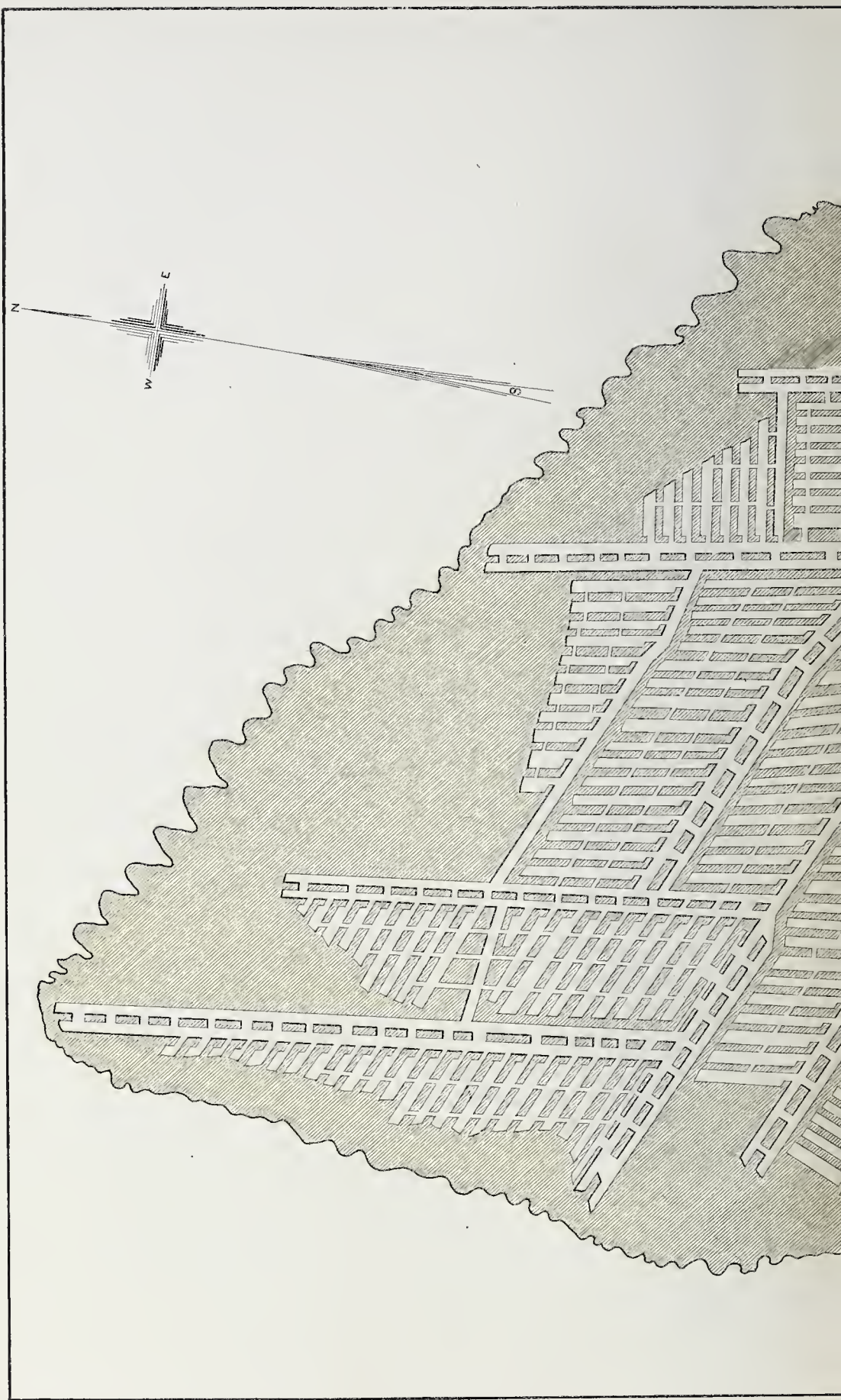
This mine is at present working well. The men were out on strike for six weeks last spring. Since my last report, a great deal of work has been done in this mine, and now both drainage and ventilation are good. The vein lies very irregular, and on account of the dips encountered, there are pumps worked by mule power, to keep the dip workings free from water. They are working at present in a good body of coal. The Long Valley Coal Company are now operating this work. Edward Macfarlane, general superintendent.

Fall Creek.

This company is doing but very little at present, there being nothing but gangway pillars, and only a few men employed.

Schraeder Mines.

These mines have not worked more than half time during the year, and





SKETCH SHOWING
PLAN OF WORKINGS
OF THE
TOWANDA COAL CO'S
MINES
AT BARCLAY, PA.
1883.

SCALE OF FEET.
0 50 100 200 400 800

RAIL
ROAD TRACKS

the prospects do not seem to brighten. They are now working on the return, taking out pillars. The condition of mines is fair, well looked after, and everything done in a proper manner. R. A. Abbott, general manager.

McIntyre.

These mines have been in operation about two thirds of the year. Three of the mines are chiefly confined to taking out pillars, which will soon be worked out. The other drift contains the greater portion of the men, which, owing to the seam being so thin, much ground has to be gone over in the course of a year. A large water-way was blasted up during the early spring, and now they are not troubled with water at all. Condition of mines good in every respect, and everything well looked after. G. H. Platt, general manager and superintendent.

Bernice.

These mines have been working very steadily during the year. In No. 1 mine, two headings have been pushed eastward and one southward, and a large body of good coal opened up, but owing to the nature of this coal field, the headings cannot be driven with the same regularity as in other more favorable localities, but have followed the sinuosities of the several local basins that are found here. These mines are in good condition. J. O. Blight, General manager.

Fall Brook.

These two mines are now confined to pillar work, but as they cover a large territory, they will last for a considerable length of time. The condition of the mines is not very good, but in all other respects they are well looked after.

Morris Run.

These mines are very extensive, and a great number of men are employed here. The Harrison coal-cutting machines still do good work in the Slope mine, and in the Salt Lake mine. Considerable work has been done during the year in draining the slope workings, and now quite an additional body of coal has been opened up. The ventilation was not very good at the time of my last visit. W. S. Mearing, general manager.

Arnot.

At these mines the work has been tolerably fair during the year, and they are capable of turning out a large amount of coal. No. 1 mine consists of pillars, and employs about twenty-five men and boys. No. 2 drift is in for a long distance, and is continually opening up some very fine coal.

In No. 3 drift there are over four hundred men and boys at work, and the coal is hauled out by a locomotive, and it does remarkable work. This locomotive will haul, in a trip, one hundred and twenty-five cars to the "water-level" heading, and at this place thirty cars are cut off for use, and the balance of the trip hauled up to "No. 15." At the present time

the engine is bringing from eight to nine hundred tons of coal per day to the chutes, and in the course of another month it will be able to bring out one thousand tons of coal per day, as they are making arrangements whereby a greater amount of coal can be brought down to the "water-level" by means of mules. Owing to the grade from the water-level to "No. 15" being so great, it is not possible for the engine to take more than about ninety cars without being subject to a great strain, while the grade from the drift-mouth to the water-level will enable them to take in a larger trip than they are now doing.

These mines are in excellent condition, roads are a proper height, the drainage good, and the ventilation first class in every respect, and it speaks well for those in charge of the mines.

The chutes outside have been enlarged, and a double track, six hundred feet in length, has been laid from chutes to drift-mouth, and covered over to protect it from the snow storms. Henry J. Landrus, general superintendent.

Antrim.

There has been steady work at these mines during the year, and a large amount of coal produced. The locomotive at the Slope mine has been abandoned, as during the year a tunnel has been made to connect with the slope.

Gaines.

This is a new work opened during the year, and owned and operated by the Gaines Coal and Coke Company. They have been shipping coal for the last three months; the vein is about three feet in thickness, and is free from bone or slate.

There is a narrow-gauge road built from Addison, New York, to the mines, and the coal is shipped to various points along the Erie railroad. P. A. Jordan, superintendent.

Renovo Mines.

These mines have been closed since the month of May.

Snow-Shoe.

These works have been operated steadily during the year, and a large amount of coal shipped.

The difficulties which they had to contend with in No. 8 mine, in the way of faults, &c., have been overcome, and they are at work on quite a large body of coal. There are only a few men at work in No. 10 mine, and the condition of the mine was fair. In Sugar Camp mine the greater portion of the men are at work, and they ship a considerable amount of coal. Ventilation in this mine pretty good.

A new drift has been put in during the year, but no coal has been shipped from it as yet. The town of Snow-Shoe seems to be enjoying a boom at present, on account of the new mines projected in the vicinity, and with the completion of the new Beech Creek and Clearfield railroad passing through, it seems as though the place would attain to some importance. G. S. Ramsey, superintendent.

Somerville Mine.

At the time of my last visit this mine was found in good condition, cut-throughs being made in the pillars every twenty yards. The coal in this mine will run from five to six feet in thickness, and is got down without blasting. The mine, if run to its full capacity, is capable of producing five hundred tons of coal per day. James L. Somerville, superintendent.

Sterling, Nos. 3 and 4.

These mines were not in operation from April to September, but are now at work again. Condition of mines at the time of my last visit fair.

Mear's Mine,

Opposite Sterling, No. 3, at the time of my last visit, was not shipping coal.

Black Diamond.

This old mine is nearly exhausted, and the airway leading to the furnace was allowed to close, so that they are now dependent on natural ventilation from the old drift. The condition of the mine is not very good. About thirty miners are employed here at present.

Phoenix.

The condition of this mine was not very good at the time of my last visit, but it worked steady during the year, the coal being chiefly used in supplying the engines on the branch roads in Clearfield county.

Boynton Mines, Nos. 1 and 2.

These works have been closed during the year. .

Robertsdale.

These mines worked very irregular during the year. Ventilation of mines fair. Drainage very bad. A new shaft has been sunk near the face of the work, and a furnace has been built. A shaft has also been sunk from No. 3 to No. 1 mine. (No. 1 mine is the seam of coal below No. 3 mine.) Much work has been done during the year in following one of the great troughs in the mine, and a new railway has been made so as to bring the loaded coal all to one side of the shaft. The pumps have also been removed from the shaft further down into the sump. James Findley, superintendent of mines.

Carbon Mines.

There is nothing new to record about these mines. They are about in the same condition as last reported. The coal in their new mine is very good. Work at these mines is not steady.

Fisher.

This mine has not been worked during the year, the Reed Bros. having surrendered their lease.

Moredale.

This mine has been closed more or less all the summer, but is now at work again. Considerable improvements have been made in the roads, &c. About twenty men are employed here. David E. Conrad, superintendent.

Ocean Mine.

Not much can be said about this mine. Ventilation fair. A new heading, now being made, is expected to open up a good body of coal. Work has been steady at this place. W. H. Sweet, superintendent.

Benedict.

This mine is the worst to be found in this region, no system of working adopted. The rooms are turned off at all angles, and pillars are not sufficiently strong to resist any great weight. I pointed out the imperfections to be found in this respect, and was assured that things should be better looked after in future. The coal is very good, and with proper management a first-class mine could be made of it.

Minersville.

This mine is in good condition and well looked after. An opening has been made on the top of the hill, and the ventilation is much improved. Another opening will soon be made in the main heading. Two new drifts have been put in during the year, and now there is only needed a road to be built, and the capacity of the works can be doubled. The coal is coked, and used in the new furnace at Saxton.

Porter Shaft.

The ventilation of this mine has been improved by cutting into the works of the Blair Iron and Coal Company. The work has been very slack at this place during the year.

Bennington.

The shaft-house, coal-bins, &c., at this place were destroyed by fire in the month of May, and since then a slope has been put down. Work commenced October 30.

Juniata.

Work has been steady at this place this year. The main heading is now in for a considerable distance, and a good body of coal is struck by this time. Ventilation of mine fair.

Glen White.

The old shaft at this place has been finished during the year. A new drift has been put in the opposite side of the creek, and now there are quite a number of men employed. A very bad fault had been struck in the main heading, and also in one of the cross-headings. Ventilation of mine good.

2076

Shaft

from
2024

2023.2
Sengmyong

Water Level

2062

2061

2056

(Old Water Course)

(Gorge)

Level

MAP SHOWING
Area of Mine Workings
AND

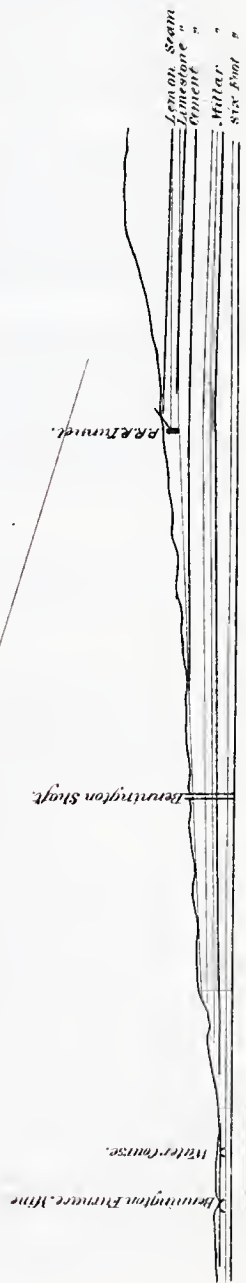
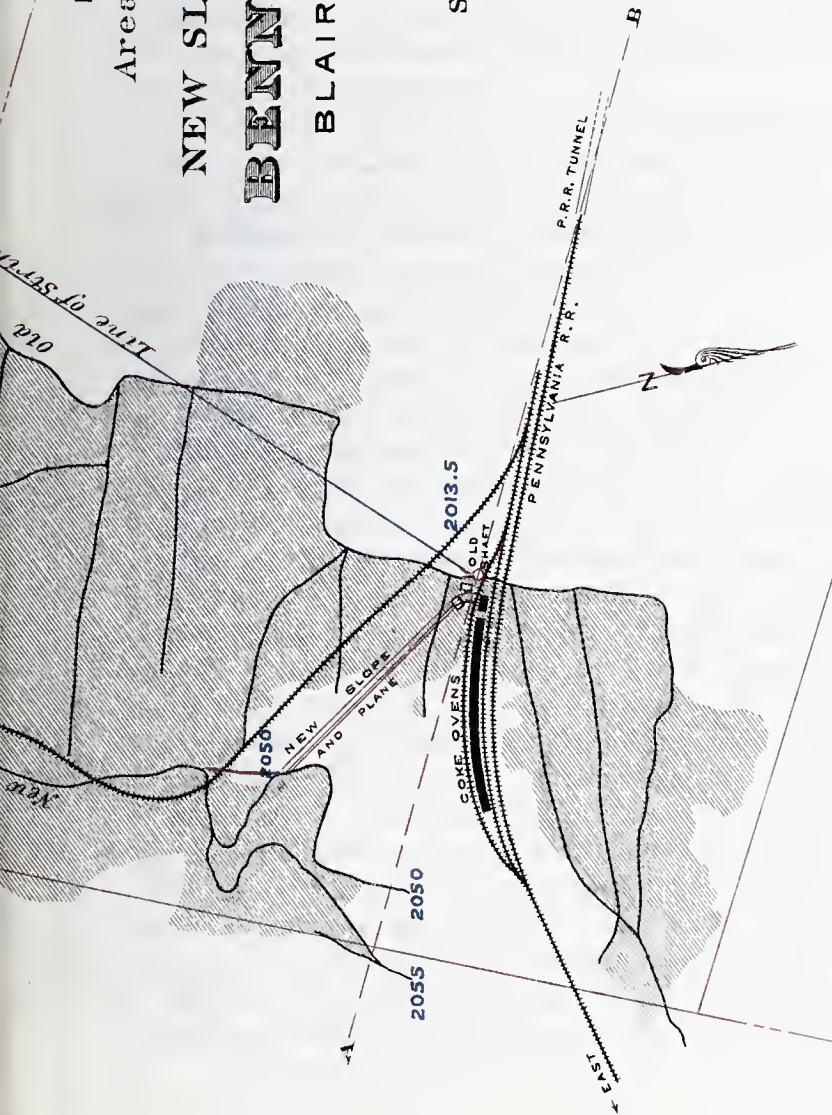
NEW SLOPE, PLANE AND GANGWAY,
AT
BENNINGTON MINE.
OF THE
BLAIR IRON AND COAL CO.

J. S. Fulton.

General Mining Engineer.

NOV. 1ST. 1883.

Scale 800 feet = 1 inch



Section through A-B.

Scale 800 feet = 1 inch.

Horse Shoe Mines.

The condition of these mines has been improved during the year, and when the slope at the lower mine is finished, they will be in much better shape for handling coal.

New Mines and Improvements.

The Gaines Coal and Coke Company have opened two new mines in Gaines township, Tioga county, and are now shipping coal.

The two mines are connected, and one furnace ventilates both. The coal will average nearly three feet in height, and is free from bone or slate. Worked on the double-heading system, and the mines are well laid out.

Berwind, White & Co., have put in a new drift at Snow Shoe, Centre county, and are now opening out the same.

James Pope, also of Snow Shoe, has just put in a new drift, but will not be able to ship coal for a considerable time.

The Clearfield Coal Company have put in five drifts in Centre county, and have built quite a large town eight miles west of Snow Shoe.

This company will not be able to ship coal until the Beach Creek, Clearfield and South-Western railroad is completed to the mines, which will be some time during next year.

W. J. Jackson, of Black Diamond mine, has put in a new drift at Powelton, Centre county, and will put in machinery to haul the coal from the drift-mouth to the chutes, as the grade is too steep to haul with mules.

S. C. Baker & Co. have driven their new slope entirely through the hill, affording excellent drainage; the railroad is also graded to the mine, and they are almost ready for shipment.

At the old mine, on the Miller vein, they have put down a slope that will cut off their old workings and shorten their haulage. Machinery is being put in, and things generally look a little brighter.

The Glen White Coal Company have opened a new drift and built a good furnace. A plane and tramway have also been built during the year. It is also the intention of this company to put in another drift to work out a piece of coal that has been left for over twenty years. The product of this mine is used in making coke, and a good article is produced.

The Blair Iron and Coal Company have finished their new slope; this mine is in Bed "B" (Miller seam,) and was formerly worked by a shaft one hundred feet deep. The shaft-house, with all its accessory appliances, was destroyed by fire May 17. Operations were resumed October 30, 1883.

The mine is now worked by a slope, which reaches the coal above level of water in the abandoned shaft. The bottom of slope is thirty-six feet five inches higher than the bottom of shaft. Height of water in the shaft about thirty feet, a greater depth is not attained, because of leakage through the shaly strata above this level in shaft. The average cost of hoisting and pumping from this mine has been two and one quarter cents per ton.

The improvements now in operation here do away with pumping, and lessen the number of hands on top. The improvements consist as follows :

Length of slope through clay and shale,	240 feet.
Length of plane,	655 feet.
Length of platform,	174 feet.
Width of slope, plane, and platform,	14 feet.
Dimensions of coal-bin,	10'x28'x59'
Capacity of bin,	350 gross tons.
Double-cylinder engine,	120 horse-power.
Four cylinder boilers.	.
Drum, (cylinder,)	16 feet diameter.
Boilers arranged to work in pairs.	

Slope is a double track-way from yard-way at bottom of slope. This work was done under the direction of John Fulton, general mine engineer. Robert A. Shillingford, engineer in charge.

The double-heading system with single track, and turnouts in main gangway, will be continued as heretofore.

The old water-course gangway serves as the drainage way of the present workings. This serves also for a passage for all waste material, and for the ingress and egress of mules.

The total cost of these improvements has been about \$10,000, and it is estimated to effect a reduction in the previous cost of coal of at least twenty cents per ton.

The haulage under the new arrangement has been shortened one thousand seven hundred feet, and the saving of twenty cents per ton is principally due to the economy of this decrease in haulage.

The annual output of the mine is about one hundred thousand gross tons, nearly all of which is converted into coke. The coking plant consists of one hundred bee-hive ovens, requiring two hundred and fifty tons of coal per day.


The mine employs ninety-four men (including laborers,) and has been in operation since 1870. Its product has for the most part been converted into coke, all of which is used in the company's furnaces at Bennington, Hollidaysburg, and Frankstown, all in Blair county.

The coke made is of good quality, porous, and sustains a good furnace burden. The mine has always presented a problem in cheap mining. The seam is three feet thick. Gangways are driven on water-level, and are exceedingly tortuous. This feature has necessitated a long haul, and it is largely due to the intelligent management of Superintendent Martin Maher that this drawback has been successfully met.

Description of Fatal Accidents.

ACCIDENTS NOS. 1 AND 2.—At Benediet mine, Dudley, Huntingdon county, Francis O'Neil, aged forty, single; and John Stull, aged twenty-four, married, were instantly killed January 4.

These two men were engaged in stripping a piece of coal from the side of the main entry for a side track, and had taken off quite a considerable



Section showing
FRESHET & STOPP
AT
BLAIR IRON & COAL COS
COAL COKE WORKS.
BIRMINGHAM

body of coal, and had been cautioned by the mining-boss to set some props under the rock, and they made reply that it was perfectly safe, and soon after they took their dinner pails, and went and sat down under the rock, and while engaged in eating the rock fell upon them, killing them instantly. Both these men were experienced miners, and were supposed to be perfectly competent to attend to their own safety while at work.

ACCIDENT No. 3.—Augustus Wheeler, aged thirteen years, and employed as a driver, was killed at Lloydsville mine January 20.

Deceased was bringing out a trip of loaded cars, and at one portion of the road there was a slight grade in favor of the loaded cars, and from the evidence given at the inquest it appears that deceased must have been running by the side of his mule while going down the grade spoken of, and struck his foot against something, and fell immediately in front of the cars. When found, the first car was resting on his back. No bones were broken, but life must have become suddenly extinct by the weight of the first car, and those behind pushing him along the ground while under the car.

ACCIDENT No. 4.—Joseph Whitehead, aged forty-eight, was killed at Lloydsville mine March 23.

Whitehead was engaged in drawing back a pillar, and on the previous day had gone home leaving a fall partially mined, and, on coming to his work on this fatal morning, had immediately gone to work to finish the rest of the mining, and had not been at work many minutes before the body of coal fell upon him, killing him instantly.

ACCIDENTS Nos. 5 AND 6.—At the Argyle mine, South Fork, Cambria county, E. J. Reichelt and C. J. Reichelt, father and son, were instantly killed by a fall of rock May 12.

The deceased miners were engaged in drawing back a pillar, and a fall having taken place, they were engaged in cutting through the pillar afresh, and had made a cutting about ten feet wide and twelve feet deep, and had some props set near the fall, and thought themselves perfectly safe, but it appears there was a slip in the roof which could not be seen, and while they were at work a rock fell upon them, killing them instantly.

The rock measured six feet in width, ten feet in length, and eighteen inches in thickness, and had to be blasted before the bodies could be got out.

Mr. Reichelt was a very careful miner, and leaves a wife and five children to mourn his untimely end.

ACCIDENT No. 7.—James Lewis, aged 41 years, was killed in the East mine, Morris Run, Tioga county, October 22.

Deceased, in company with his boy, was engaged in pulling back a pillar, and the roof being so bad the mining-boss had allowed him to drive a narrow heading through it, so it would be safer to bring back, and on the day in question had been at work as usual, and after pushing out his car was on his way back, when a stone fell from the roof, killing him instantly.

On examination of the place I found that the heading where the stone fell was not over six feet in width, but on the right hand side there was a

slip running up into the roof, and the stone broke off on the other side just as he was going under it, killing him instantly.

His boy, who was immediately behind him while going into the place, was also caught by the tail end of the stone and slightly injured.

No blame could be attached to any one under the circumstances, but it seems to have been one of those unforeseen accidents that occasionally happen in the best regulated mines.

ACCIDENT No. 8.—Joseph Yancoski, aged sixteen, a native of Poland, was instantly killed in the Hope mine, Morris Run, Pennsylvania, October 29, by a fall of rock while undermining.

Deceased, in company with his father, was at work at the loose end side of a range of breasts, and on the Saturday previous had fired two shots, one on the loose end and the other on the fast end side of the place. The loose end shot failed to bring down the rock, while the fast side shot brought down both coal and rock, and on the Monday they blasted out the lower coal from under the rock, and then went under it to mine deeper, and had not mined many inches deep when the rock fell upon the boy, killing him instantly.

This accident seemed to be due to the entire ignorance of both father and son, as no proper miner would have gone to work under this rock without propping it before doing so.

Remarks on Fatal Accidents.

The number of fatal accidents for the ten months ending October 31 was eight, and of these it will be noticed that seven were due to fall of roof and coal, while the eighth was by mine cars, and thus conclusively showing that the majority of accidents, both fatal and non-fatal, are to be attributed to falls of roof and coal, but so long as coal mining is carried on, so long will there be accidents, more or less, resulting from falls.

What is most needed is to educate the miner to take no chances whatever, so far as roof and coal are concerned, and to carefully and repeatedly sound the roof, and, when finding it in the least degree giving way, to immediately make it secure. So in like manner in mining coal, it is best not to trust to the coal staying up while engaged in bearing in, but always to have handy some short sprags, so that as the undermining progresses, these sprags can be set so that the miner will be secure, and if we thus educate him to be always on the look-out for danger, and not to trust too much to the roof or the coal staying up, I think accidents from falls will not occur so often.

Of course, the nature of the roof, and also the coal, is to be taken into consideration, for there are seldom any two places altogether alike in every respect, but it is to be supposed that each mining boss understands the nature of the roof, and also the coal of the mine over which he has charge, and by watchfulness on his part as he visits the different parts of the mine, he cannot note which of the miners attend to propping the roof and sprag-

ging the coal, and warn those that are neglectful, of the risk they run in not attending to these things.

It must not be inferred from what I have said above, that mining bosses, are, as a rule, negligent in enforcing the propping, and keeping the places safe as the work progresses, but in a few cases that have come under my notice, I find that the mining bosses know little, if anything, about the nature of roof, and the working of a mine generally, and it is here where the most fault is to be found, for if those in charge are careless, we may rest assured the miners do not take the pains they ought to keep themselves thoroughly safe.

TABLE 1.—Showing Location of Collieries in the Fourth Bituminous Mine District.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Barelay, Nos. 1, 2, 3, and 4, . . .	Towanda Coal Company,	Bradford,	F. F. Lyon,	Barelay, Bradford county.
Carbon Run, Nos. 1, 2, and 3, . . .	Schraeder Coal Company,	do.	R. A. Abbott,	Carbon Run, Bradford county.
Long Valley,	Long Valley Coal Company,	do.	Edward Macfarlane, . . .	Towanda, Bradford county.
Fall Creek,	Fall Creek Coal Company,	do.	W. M. Maltory,	do.
Benington Shaft,	Blair Iron and Coal Company, . . .	Blair,	John Fulton,	Johnstown, Cambria county.
Benington Drift,	do.	do.	do.	
Porter Shaft,	Denniston, Porter & Co.,	do.	C. H. Porter,	Holidaysburg, Blair county.
Junlata,	Junlata Coal Company,	do.	Samuel Langdon,	Willings alley, Philadelphia.
Glen White, Nos. 1 and 2,	Glen White Coal Company,	do.	David McCoy,	Glen White, Blair county.
Horse Shoe, Nos. 1, 2, and 3,	S. C. Baker & Co.,	do.	Andrew Partek,	Altoona, Blair county.
Black Diamond, Nos. 1 and 2,	W. J. Jackson,	Centre,	W. J. Jackson,	Osceola Mills, Clearfield county.
Enterprise,	Enterprise Coal Company,	do.	John Burns,	do.
Boynton Coal Company,	Boynton Coal Company,	do.	Thomas Estep,	do.
Mears' Mine, . . . . .	. . . . .	do.	J. F. Mears,	do.
Sterling, Nos. 3 and 4,	R. H. Powell & Co.,	do.	James Campbell,	Houtzdale, Clearfield county.
Snow Shoe, Nos. 1, 2, and 3,	Berwind, White & Co.,	do.	George S. Ramsey,	Snow Shoe City, Centre county.
Somerville,	Harned, Jacob & Co.,	do.	James Somerville,	Bellefonte, Centre county.
Wallace Mine, . . . . .	. . . . .	do. . . . .	. . . . .
Renovo Mines, Nos. 1 and 2,	Richard Langdon,	Clinton,	David Puchon,	Renovo, Clinton county.
Robertsdale, Nos. 1, 2, and 3, . . .	Rockhill Iron Company,	Huntingdon,	A. W. Sims,	Orbisonia, Huntingdon county.
Carbon Mines, Nos. 1 and 2,	Mears Brothers,	do.	J. F. Mears,	Broad Top City, Huntingdon county.
Cliff Mine,	W. H. Sweet & Co.,	do.	W. H. Sweet,	Dudley, Huntingdon county.
Ocean Mine, Nos. 1 and 2,	do.	do.	do.	do.
Fisher,	Reakert, Bros. & Co.,	do.	David Conrad,	do.
Moredale,	do.	do.	do.	do.
Benedict,	Reed Brothers,	do.	Scott Reed,	do.
Powelson, Nos. 1, 2, and 3,	R. H. Powell & Co.,	do.	J. Maedonaid,	Huntingdon, Huntingdon county.
McIntyre, Nos. 1, 2, 3, and 4, . . .	McIntyre Coal Company,	Lyconing,	G. H. Platt,	Langdon, Lycoming county.
Morris Run, Nos. 1, 2, and 3,	Morris Run Coal Company,	Tloga,	W. S. Mcaring,	Morris Run, Tioga county.
Fall Brook, Nos. 1 and 2,	Fall Brook Coal Company,	do.	Frederick Wells,	Fall Brook, Tioga county.
Antrim, Nos. 1, 2, and 3,	do.	do.	James Pollock,	Antrim, Tioga county.
Arnot, Nos. 1, 2, and 3,	Blossburg Coal Company,	do.	Henry J. Landrus,	Arnot, Tioga county.
Gaines' Coal and Coke Company, . . .	Gaines' Coal and Coke Company, . .	do.	Thomas Platt, junior, . . .	Addison, New York.
Bernice, Nos. 1 and 2,	State Line and Sullivan Railroad Company, .	Sullivan,	I. O. Blight,	Towanda, Bradford county.

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective Collieries of the Fourth Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Antrim, No. 1,	Furnace,	20	6x9 }	62 000	2	10	42	48
Antrim, No. 2,	Furnace,		5x6 }		2			
Antrim, No. 3,	Furnace,		6x9 }	10,500	2	5	40	27
Arnot, No. 1,	Furnace,		5x6 }	25,000	2	4	42	27
Arnot, No. 2,	Fan,	20		90,000	2		50	42
Arnot, No. 3,					2	18	100	100
Barclay, No. 1,	Furnace,		6x8 }	40,000	2	5	72	100
Barclay, No. 2,	Furnace,		5x7 }	36,000	3	4	92	92
Barclay, No. 3,	Furnace,		5x7 }	20,000	2	5	40	60
Barclay, No. 4,	Furnace,		5x7 }	22,000	2	7	36	40
Bennington,	Fan,	6		28,000	2	4	140	352
Bernice, No. 1,	Furnace,		5x8 }	14,000	3	4	30	30
Bernice, No. 2,	Natural,				2	5	40	60
Benedict,	Natural,				2	3		
Black Diamond,	Natural,				2	3	30	30
Carbon Run, No. 1,	Furnace,		6x8 }	17,800	2	4	100	50
Carbon Run, No. 2,	Furnace,		5x8 }	9 880	2	2	64	90
Carbon Run, No. 3,	Furnace,		5x8 }	30,000	2	3	50	60
Carbon Mine, No. 1,	Natural,				2	3	36	23
Carbon Mine, No. 2,	Natural,				3	2	50	35
Cliff Mine,	Natural,				2			
Fall Brook, No. 1,	Furnace,		5x9 }	9,700	2	6	30	30
Fall Brook, No. 2,	Furnace,		6x9 }	11,000	2	7	35	60
Fall Creek,	Natural,				2		36	30
Fisher,	Natural,				2	3	36	22
Glen White,	Furnace,		5x7 }	7 000	2	4	40	30
Gaues, No. 1,	Furnace,				2	6		
Gaues, No. 2,	Furnace,		4x6 }		2			
Horse Shoe, No. 1,	Furnace,		3x5 }		2	3	30	38
Horse Shoe, No. 2,	Furnace,		4x6 }		2	4	36	23
Long Valley,	Furnace,		6x9 }	16,000	2	5	100	40
McIntyre, No. 1,	Furnace,		5x5 }	6,900	2	2	48	48
McIntyre, No. 2,	Furnace,		6x8 }		2	2	48	48
McIntyre, No. 3,	Furnace,		7x8 }	20,000	2	3	48	56
McIntyre, No. 4,	Furnace,		7x8 }	17,000	2	5	35	56
Morris Run, No. 1,	Natural,							
Morris Run, No. 2,	Furnace,		8x10 }	42 030	2	4	90	70
Morris Run, No. 3,	Furnace,		10x12 }	45,000	2	10	130	66
Morris Run, No. 4,	Furnace,		8x10 }	30,000	2	8	95	52
Minersville,	Furnace,							
Moredale,	Natural,							
Ocean,	Natural,							
Porter Shaft,	Fan,			13,000	3	5	40	24
Phoenix,	Furnace,		4x6 }		2	3	36	24
Robertsdale, No. 1,	Furnace,		6x8 }	18,000	2	3		
Robertsdale, No. 2,	Furnace,		6x8 }		2	4	36	40
Robertsdale, No. 3,	Furnace,				2	5	40	40
Renovo, No. 1,	Furnace,		4x6 }		2	3	36	30
Renovo, No. 2,								
Snow Shoe, No. 1,	Furnace,		6x8 }	20,000	2	3	48	34
Snow Shoe, No. 2,	Furnace,		5x6 }	14,000	2	4	43	30
Snow Shoe, No. 3,	Furnace,		7x10 }	38,000	2	4	36	40
Somerville Mine,	Natural,			10,000	2	5	36	42
Sterling, No. 3,	Natural,			7,000	2	3	30	36
Wallace Mine,	Natural,							

TABLE IV.—VENTILATION OF COLLIERIES—Continued.

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.		Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.		Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.		Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.
Glen White, No. 1.	170	6,120	65	2,600	275	6,050	180	6,480	65	2,600	280	6,180	163	6,300	70	2,800	280	6,180
Great Bend, No. 2.													120	4,800	90	3,600	194	7,760
Horse Shoe, No. 1.																		
Horse Shoe, No. 2.																		
Horse Shoe, No. 3.																		
Loydsville,	550	19,200	270	9,450	580	20,300	500	17,500	290	10,150	440	15,400	400	14,000	300	10,000	430	15,050
Long Valley.																		
Lilly's.																		
McIntyre, No. 1.																		
McIntyre, No. 2.																		
McIntyre, No. 3.	180	16,738	220	8,108	400	23,968	170	15,975	220	8,800	370	22,338	180	16,738	190	7,179	370	22,388
McIntyre, No. 4.	200	13,104	200	7,488	290	17,992	180	12,017	170	6,566	300	18,536	180	12,240	200	7,488	260	16,363
Martindale, No. 1.																		
Martindale, No. 2.																		
Mentzer.																		
Morris Run, No. 1.	400	35,000	160	7,200	800	57,600	400	36,000	160	7,600	756	40,250	400	36,000	160	7,200	700	50,400
Morris Run, No. 2.	410	41,000	155	6,975	700	46,200	410	41,000	150	6,200	700	44,800	440	44,000	150	6,900	720	43,200
Morris Run, No. 3.	420	37,800	160	7,200	750	37,500	405	32,600	140	6,000	710	38,600	380	34,200	140	5,760	630	34,000
Old South Fork.																		
Porter Shaft.	310	12,400					300	12,000						11,600				
Robertdale, No. 1.																		
Robertdale, No. 2.																		
Robertdale, No. 3.																		
Rolling-Mill.	720	46,080	395	19,750	620	43,400	720	46,080	394	19,730	618	43,260	718	45,925	390	19,000	620	43,400
Snow Shoe, No. 3.																		
Souman Mines, No. 1.	100	3,600	70	3,150	280	8,400	100	3,600	70	3,130	250	7,800	800	28,500	400	19,200	830	28,800
Souman Mines, No. 2.	60	1,800	50	1,600			60	1,800	40	1,280								
Souman Shaft.							210	6,300	170	4,590	460	4,800						

[illegible]

TABLE IV.—VENTILATION OF COLLIERIES.—Continued.

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1.	500	21,000	100	4,000	440	21,120	490	20,580	110	4,400	435	20,880	450	18,900	120	4,800	410	19,600
Antrim, No. 2.	400	30,000	200	8,000	700	23,400	400	30,000	220	8,800	690	28,980	380	28,500	200	8,000	650	27,300
Antrim, No. 3.	300	10,500	200	72,000	400	10,800	300	10,500	180	6,480	380	10,260	270	9,450	180	6,480	370	9,990
Arnot, No. 1.																		
Arnot, No. 2.																		
Arnot, No. 3.																		
Argyle.																		
Aurora.																		
Barclay, No. 1.	160	16,000	160	7,240	400	36,000	180	18,000	140	6,720	290	28,000	190	19,000	150	7,200	470	23,200
Barclay, No. 2.	170	17,000	220	8,800	400	24,000	190	19,000	240	9,600	270	27,000	200	17,200	155	6,800	230	19,800
Barclay, No. 3.	280	18,600	200	7,340	420	25,000	175	17,500	200	8,000	420	28,000	210	18,000	200	7,680	230	20,000
Barclay, No. 4.	190	19,000	210	8,400	320	26,700	240	24,000	230	9,300	360	36,000	230	20,000	208	6,850	300	26,000
Ben's Creek.																		
Bennington.																		
Berlice, No. 1.	160	9,600	25	1,250	225	9,400	180	10,800	25	1,256	225	9,000	160	9,600	25	1,250	215	8,600
Berlice, No. 2.	156	9,360	. . .	. . .	210	10,500	185	11,100	. . .	. . .	. . .	11,250	150	9,000	. . .	. . .	220	11,000
Benedict.																		
Black Diamond.																		
Carbon Run, No. 1. . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Run, No. 2. . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Run, No. 3. . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Mines, No. 1. . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Mines, No. 2. . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Conebaugh.																		
Cushon.	56	3,648	58	3,186	157	3,925												
Dysart.																		
Enterprise.																		
Fall Brook, No. 1.	360	10,800	375	9,900	340	10,200	360	10,800	370	8,880	355	10,650	300	10,800	300	7,200	340	10,200
Fall Brook, No. 2.	350	12,250	380	9,120	230	18,800	370	12,950	300	9,350	240	14,400	370	12,950	180	6,250	230	14,100
Fisher.																		

[illegible]

TABLE IV.—VENTILATION OF COLLIERIES—Continued.

NAME OF COLLIERY.	OCTOBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Barclay, No. 1,	180	18,000	200	9,600	230	23,000
Barclay, No. 2,	200	20,000	240	9,600	320	32,000
Barclay, No. 3,	190	19,000	210	8,800	350	24,000
Barclay, No. 4,	220	22,000	230	9,200	300	30,000
Bernice, No. 1,	160	9,600	30	1,500	225	9,000
Bernice, No. 2,	150	9,000	. . .	. . .	230	11,750
Fall Brook, No. 1,	355	10,500	360	8,640	240	10,200
Fall Brook, No. 2,	360	12,600	370	8,880	230	13,800
Glen White,	190	6,840	75	5,575	330	7,250
McIntyre, No. 3,	350	17,719	230	8,419	400	22,968
McIntyre, No. 4,	170	11,479	200	7,488	260	16,820
Morris Run, No. 1,	400	32,500	170	7,350	700	38,600
Morris Run, No. 2,	390	28,000	160	7,240	650	30,000
Morris Run, No. 3,	370	27,000	168	7,030	720	32,300
Snow Shoe, No. 1,	500	18,000	100	3,600	600	21,000
Snow Shoe, No. 2,	900	32,000	300	10,800	1,000	36,000
Sterling, No. 3,	110	4,640	80	3,000	150	5,750

LIST OF ACCIDENTS occurring in the Mines of the Fourth Bituminous Coal District of Pennsylvania, for the year ending October 31, 1883.

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Jan. 4	Francis O'Neill,	40	Single.	..	Benedict,	Huntingdon,	..	Killed by fall of rock while making side track.
Jan. 7	John Stull,	24	Married,	..	Benedict,	Huntingdon,	..	Killed by fall of rock while making side track.
Jan. 13	Augustus Wheeler,	13	..	..	Loydsville,	Cambria,	..	Killed by being run over by trip of loaded cars.
Feb. 3	Orlan Rogers,	14	..	..	McIntyre,	Lycum,	..	Leg broken by being caught between cars while jumping off.
Mar. 5	S. P. Diller,	40	Married,	..	Loydsville,	Cambria,	..	Leg broken.
Mar. 7	J. C. Horner,	50	Married,	..	Antrim,	Cambria,	..	Leg broken.
Mar. 17	D. C. Thomas,	16	..	..	Antrim,	Tioga,	..	These men were all riding in an empty trip of cars to their work, and one of the men had a can of powder. The bottom of the can was defective, and with the jolting of the car some of the powder was spilled on the bottom of the car, and in trimming his lamp some of the fire fell among the loose powder, igniting it and communicating with that in the can, an explosion followed. They were all more or less severely burned.
Mar. 17	W. Cole,	18	..	..	Antrim,	Tioga,	..	Severely injured in the back by fall of rock.
Mar. 17	J. Burns,	12	..	..	Antrim,	Tioga,	..	Killed by fall of coal while undermining.
Mar. 17	John Burns,	28	Married,	..	Antrim,	Tioga,	..	Leg broken by fall of coal.
Mar. 17	J. Kilpatrick,	52	Married,	..	Antrim,	Tioga,	..	Killed by fall of rock while cutting across pillar.
Mar. 17	W. Kilpatrick,	21	Single,	..	Antrim,	Tioga,	..	Killed by fall of rock while cutting across pillar.
Mar. 17	A. G. Halberg,	24	Single,	..	Antrim,	Tioga,	..	Leg broken.
Mar. 17	Aaron Larson,	29	Single,	..	Antrim,	Tioga,	..	Leg broken by fall of coal.
Mar. 17	A. N. Anderson,	27	Single,	..	Antrim,	Tioga,	..	Hurt by jumping of the cars.
Mar. 17	William Blair,	33	Married,	..	Antrim,	Tioga,	..	Arm broken by fall of coal.
Mar. 17	John Shearer,	30	Married,	..	Antrim,	Tioga,	..	Leg broken.
Mar. 17	Robert Drysdale,	20	Married,	..	Barclay,	Bradford,	..	Leg broken by being run over by mine car.
Mar. 23	Joseph Whitehead,	48	Married,	..	Loydsville,	Cambria,	..	Hurt in face by coal by a premature blast.
Mar. 23	William Potts,	48	Married,	..	Barclay,	Bradford,	..	Hurt by fall of bottom coal.
May 12	E. J. Reichelt,	53	Married,	5	Argyle,	Cambria,	May 13	Hurt badly by fall of rock from roof of heading.
May 12	C. J. Reichelt,	22	Single,	..	Argyle,	Cambria,	..	Killed by fall of stone.
May 17	John Ericson,	22	Single,	..	Antrim,	Tioga,	..	Killed by fall of stone.
June 6	William A. Kelly,	20	Single,	..	Sonnan,	Cambria,	..	
June 6	Daniel O'Donnell,	19	..	..	Rolling-Mill,	Cambria,	..	
June 26	James H. Fisher,	30	Married,	..	Sonnan,	Cambria,	..	
June 29	August Carlson,	29	..	..	Annot,	Tioga,	..	
July 30	Thomas Davics,	14	..	..	Barclay,	Bradford,	..	
Sept. 10	— Murphy,	..	..	..	Snow Shoe,	Centre,	..	
Sept. 18	James Burns,	..	..	..	Snow Shoe,	Centre,	..	
Oct. 20	Pat Lynch,	20	..	..	Morris Run,	Tioga,	Oct. 22	
Oct. 22	James J. Lewis,	41	Married,	2	Morris Run,	Tioga,	Oct. 29	
Oct. 29	Joseph Yancoski,	16	..	..	Morris Run,	Tioga,	..	

FIFTH DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania*:

SIR: I have the honor herewith to submit my annual report for the Fifth Bituminous Coal District of Pennsylvania, under the amended act of the bituminous ventilation law, approved June 13, 1883, the district containing the counties of Fayette, Somerset, and Bedford. I commenced my actual duties of the office on September 6, and visited the various mines, as you will find herein reported. However, a great deal of my time is spent in measuring, calculating, and branding coal cars, a most enormous labor for one person to perform, since the coal in my district, in the Connellsville coke region, is almost entirely mined by the bushel and car system. This duty (when the office of sealer of weights and measures was abolished) was put upon the inspectors to perform by an act approved June 1, 1883, known as the act "To protect miners in the bituminous coal region of this Commonwealth."

In consequence of this extra labor, the little time I have spent in examining the coal mines, I find that the bituminous ventilation law is not carried out in some of them. I also notice the old single-heading system of mining is still in practice, and with it "natural ventilation." It is certainly very strange that in this progressive period of mining such things could prevail; however, it is the case, and those employed in the inside workings feel the bad effect and I have no doubt when the time comes, when the heading blocks are to be mined, the operators and owners of the coal will find out "that it is a very faulty system of mining," and I hope that this mode of mining may become a thing of the past, for the benefit of all who are concerned in mines and mining, especially, and immediately those mines in the Connellsville coke region, whom from year to year get nearer the deep basin, and which now generate explosive gas, and still, in all likelihood, will generate more the deeper they will be driven towards the basin; and it is a known fact that in solid-room workings no gas was noticed, but when the pillars of those rooms were removed and the overlying strata broke, the gas made its appearance, and three fatal accidents heretofore were the result.

Another bad custom prevails in some of the mines that I have examined, in carrying the inlet of air from one mine to another, and through old workings, so much so that the air is very impure, and in many cases oppressive. I shall see to it, however, that new and pure inlets of air be made, and the men inside breathe a purer atmosphere; and in conclu-

sion I would say, I will always be glad and ready to assist mining-bosses and superintendents in the improvements to be made, under the spirit of the law, or aid and assist, by my advice, in the laying out of new mines, and by so doing create some model mines in my district.

Yours very respectfully,

AUGUSTUS STINNER,
Inspector.

CONNELLSVILLE, *November 1, 1883.*

FAYETTE COUNTY MINES.

McClure & Raferty's mines, on the Mt. Pleasant branch, drift No. 1. Mining-boss, Mr. Hurly. I found in a fair condition, ventilating by a basket furnace. Their main work is in removing the pillars,

McClure & Raferty, No. 2 drift, is ventilated by natural ventilation, and was not in a satisfactory condition, the mining-boss, Mr. Keck, claiming, however, that the mine would be in a better condition in a few weeks. The mine is comparatively new yet.

McClure & Raferty, No. 3 drift, or Diamond mine, is ventilated by some sort of bars built on a few stones, and after the fire was stirred up found at this outlet 1,500 cubic feet of air per minute. It seems the air gets in the best way it can.

Dexter mine, Mt. Pleasant Branch railroad, J. R. Stauffer & Co. Samuel R. Fairchild, mining-boss. Is ventilated by natural ventilation, the workings consisting mainly of drawing pillars, and under the circumstances of natural ventilation, was in a fair condition. However, in the near future, the company will operate a new opening in the second hill.

The Charlotte Furnace Company mines, Mt. Pleasant Branch railroad, is ventilated by furnace, and in a good condition. The appearance of the inside workings of the mines shows at a glance that the mine is being taken care of by somebody. This mine is noted in the district for paying cash every two weeks. Mr. H. Swartz is mining-boss.

H. C. Frick & Co., South-West Branch Railroad Valley mines. James Jackson, mining-boss. The mine, when I visited it, was not in a good condition for ventilation. I was assured, however, that it would be improved considerably in a few weeks. The furnace near the pit mouth having no effect on the inside workings of the mine where the miners were working, there was no perceptible current of air.

Clinton mines, Mt. Pleasant Branch, B. F. Kiester & Co., is ventilated by furnace; have the double-entry system, and the mine is in a first-class condition. Mr. Barnum is mining-boss.

Franklin mines, Mt. Pleasant Branch, B. F. Kiester & Co. Mr. Barnum, mining-boss. This mine is ventilated by natural ventilation, and has not been very long in operation. I found it in a very fair condition.

Tip-Top mines, H. C. Frick & Co., Mt. Pleasant Branch railroad, are ven-

tilated by natural ventilation, and I found part of the works in a bad condition, the miners working beyond the air. I reported the situation to the manager of the mines, and by a visit again to this mine found that my request had been complied with. Mr. McCleary is mining-boss.

Summit mines, Mt. Pleasant Branch, H. C. Frick & Co., has two pit mouths out of which they haul the coal. The mines are ventilated by furnace, and have a large amount of ventilation at outlet or furnace. Improvements are made here with which I am well pleased. The mine should have a pure inlet of air since the present air in circulation is impure and oppressive. Mr. Jack Moody is mining-boss.

Eagle mines, Mt. Pleasant Branch, H. C. Frick & Co., is ventilated by natural ventilation, and is rather a new mine yet, and under those circumstances I found it in a fair condition. John Minert, mining-boss.

Foundry mines, Mt. Pleasant branch, H. C. Frick & Co., is claimed to be ventilated by furnace, but is not; the miners mainly worked beyond the air. The mine in general is in a bad condition. I have given orders which will improve the workings. Mr. John Minert is at present mining-boss, having taken charge of it lately.

White mine, Mt. Pleasant branch, H. C. Frick & Co., is ventilated by furnace, by the single-heading system, and has two pit mouths for hauling the coal out of, and is in a fair condition, but there is plenty of room for improvement. Peter Glenn is mining-boss.

Morgan mine, Mt. Pleasant branch, H. C. Frick & Co., is ventilated by furnace, on the single-heading system; not in a good condition. The mine is in a long distance. What air there is, is in an impure state. The mine should have a more pure inlet of air. Thomas R. Kane is mining-boss.

Frick mines, Mt. Pleasant branch, H. C. Frick & Co., are ventilated by natural ventilation, on the single-heading system. Some of the miners are working beyond the air, for the reason, however, the mining-boss, Mr. Keck, claims there was a crush came on in a part of the mine, and the miners had to be removed; consequently, the miners were working beyond the air at the time of my visit; however, prompt steps have been taken to remove that evil; even if that is cured, there are still other improvements necessary to be made.

Henry Clay mine, on the Baltimore and Ohio railroad, H. C. Frick & Co., is worked by the single-heading system, and are trying to ventilate it by natural ventilation, and the mine in general is in a bad condition. I have written to the general manager of H. C. Frick & Co., requesting him to put the mines in order so as to be in conformity with the law, which, I think and have reason to believe, will be complied with.

Plumer mine, on the South-west railroad, H. C. Frick & Co., is ventilated by furnace, worked on the single-heading system, and is in pretty fair condition, considering the system. Mr. Thomas Lowden is mining-boss.

Rainey & Co. mines, on the South-West railroad, (or the Grace mines,) ventilated by exhaust steam, but the current is not sufficient, caused by the

heated steam. Other artificial ventilation will be provided for in the near future. At present the mine is not in a bad condition. Mr. John Yochum is mining-boss.

Youngstown mines, on the south-West railroad, are ventilated by exhaust steam. The slope, or main heading, is driven two thousand feet, at an angle of depression of six and one half degrees, showing a perpendicular depth from the beginning point of slope two hundred and twenty-six feet. The mine, I am told, will also be improved, both in motive power and in ventilating; also the system of ventilating. This mine generates some explosive gas. The mine is in fair condition. Mr. John Patton is mining-boss.

Percy mine, on the South-West railroad, is a slope driven down in length about nine hundred and fifty feet. The mine at the time of my visit was ventilated by natural ventilation, (or at least they have been trying to do so.) I did not notice any perceptible current of air any place in the mine, and at the same time a large volume of standing explosive gas in one of the headings. In the same heading, a miner, by the name of James Martin, was burned by gas on the morning of September 20, (previous to my visit,) in going to work, as he was one of the heading drivers and set it on fire with his naked lamp. Martin, on the 29th of September, when I visited the mine, was reported to be better again, and expected to work again in a few weeks. I gave the mining-boss strict orders to have the mine examined every morning by a competent man before any miner entered the works; to have the mine put in order at once, and provide for a sweeping current of air to clean the mine at all times of its dangerous gases, and in return was informed by letter that my wishes should be complied with. Mining-boss, E. Shiply.

Somerset county, West Salisbury branch, Thomas Williams mine. Was notified by Inspector James Louttit that a fatal accident had occurred at Thomas Williams mines. When I examined the accident I found that it was purely accidental. Mr. John Williams, a son of the superintendent, and who is also the operator of the mine, was working with his brother-in-law, (both experienced and practical miners,) together in one room, or open end, and after they had fired a shot, and the coal not having fallen down, young Williams took a pick to examine the coal, and pulling a shell the coal tumbled down catching Williams and throwing him against a car standing near by; from the effects of the injury received he died a few hours afterwards. This happened in the afternoon of September 13.

Mr. John Williams was twenty-seven years of age and married, and leaves a wife and one child to mourn over his untimely death.

TABLE I.—Showing location of collieries in the Fifth Bituminous Mine District.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Fahner Mine, No. 1,	McClure & Rafferty,	Fayette,	Frank Riekert,	Smithfield street, Pittsburgh.
Fahner Mine, No. 2,	do.	do.	do.	do.
Diamond Mine,	do.	do.	do.	do.
Dexter Mine,	J. R. Stauffer & Co.,	do.	Samuel R. Fairchild,	Scottsdale, Westmoreland county.
Valley Mine,	H. C. Frick & Co.,	do.	Thomas Lynch,	do.
Tip-Top,	do.	do.	do.	do.
Samult,	do.	do.	do.	do.
Eagle,	do.	do.	do.	do.
Foundry,	do.	do.	do.	do.
Morgan,	do.	do.	do.	do.
Frick,	do.	do.	do.	do.
Henry Clay,	do.	do.	do.	do.
White,	do.	do.	do.	do.
Furnace Mine,	Charlotte Furnace Company,	do.	Henry Swartz,	do.
Grace,	W. J. Rainey & Co.,	do.	William Cochran,	Moyer P. O., Fayette county.
Clinton,	B. F. Klester & Co.,	do.	B. F. Klester,	Owensdale P. O., Fayette county.
Franklin,	do.	do.	do.	do.
Tyrone,	Laughlin & Co.,	do.	do.	do.
Trotter,	Councils Gas Coal Company,	do.	W. C. Wiekham,	Broadford P. O., Fayette county.
Ileschring,	Councils Coal and Iron Company,	do.	J. K. Taggart,	Connellsville, Fayette county.
Wheeler,	Cambria Iron Company,	do.	James F. Beattie,	do.
Morrell,	do.	do.	do.	do.
Youngstown,	Youngstown Coke Company,	do.	Fred. Kelghley,	Uniontown, Fayette county.
Leth,	Councils Coal and Coke Company,	do.	Frank M. Reynolds,	do.
Carondelet,	Frazier & Fry,	do.	do.	Fayette City, Fayette county.
Mc. Equity,	Kemble Coal and Iron Company,	do.	do.	Kiddesburg, Bedford county.
Cunard,	R. B. Wigton & Sons,	Bedford,	do.	Six Mile Run, Bedford county.

TABLE II.—*A statement showing characteristics, number of employes, production, &c., of the respective collieries in the Fifth Bituminous Minc District for the year ending October 31, 1888.*

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi- Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners— men.	Number of miners— boys.	Other employes.	Total employes.	Number of mules in- side.	Number of mules out- side.	Number of loco- matives.	Total production of coal in tons.
Cochrane,	Bituminous,	Drift, . . . . .	..	..	..	..	20	1	4	25	3	..	..	1,500
Carondelet,	do.	Drift, . . . . .	..	..	..	..	82	..	10	92	6	..	..	4,928
Clinton,	do.	Drift, . . . . .	..	..	..	..	12	2	2	16	1	..	..	600
Cunard,	do.	Drift, . . . . .	..	..	..	..	15	5	5	25	6	..	..	..
Diamond,	do.	Drift,	1	1	40	2	20	..	3	23	2	..	..	..
Eagle,	do.	Drift, . . . . .	..	..	..	..	23	..	30	53	3	..	..	4,100
Franklin,	do.	Drift, . . . . .	..	..	..	..	13	..	2	15	2	5	..	..
Frick,	do.	Drift, . . . . .	..	..	..	..	38	..	30	68	5	2	..	5,400
Foundry,	do.	Drift, . . . . .	..	..	..	..	18	..	17	35	3	1	..	3,900
Furnace,	do.	Drift, . . . . .	..	..	..	..	26	..	2	23	12	..	..	3,682
Henry Clay,	do.	Drift,	2	2	75	4	44	6	33	77	6	1	..	6,000
Leth,	do.	Drift,	4	4	..	5	65	..	20	91	11	4	..	30,000
Lelsenring, No. 1,	do.	Shaft,	4	2	500	7	130	6	20	156	14	..	..	22,500
Morgan,	do.	Drift, . . . . .	..	..	..	..	51	..	40	91	5	2	..	9,000
Morrell,	do. . . . .	.. . . . .	2	1	120	4	123	15	48	153	18	3	..	50,873
Mt. Equity,	Semi-Bituminous,	Slope, . . . . .	..	..	..	..	55	6	11	72	20	..	..	6,139
Palmer,	Bituminous,	Drift,	1	..	..	..	45	4	9	53	7	1	..	..
Summit,	do.	Drift, . . . . .	..	..	..	..	38	34	72	5	3	..	..	7,500
Tip-Top,	do.	Drift, . . . . .	..	..	..	..	20	..	15	35	5	1	..	3,500
Trotter,	do.	Shaft,	3	3	140	6	81	6	18	105	8	7	..	47,800
Tyrone,	do.	Drift, . . . . .	..	..	..	..	32	4	4	40	8	1	..	142
Valley,	do.	Drift, . . . . .	..	..	..	..	50	..	70	100	4	2	..	8,059
Wheeler,	do.	Slope, . . . . .	..	..	..	..	31	4	17	52	4	4	..	16,833
White,	do.	Drift,	2	1	60	2	65	..	76	141	5	2	..	8,000
Youngstown,	do.	Slope,	3	2	150	5	110	5	49	164	6	6	..	49,425

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective Collieries of the Fifth Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square ft.	Outlet—size of—square feet.
Painter Mine, No. 1,	Basket furnace,	8 feet area,	8 feet area,	5,074	12	5	8 x 8	5 x 5
Painter Mine, No. 2,	Natural,	8 feet area,	8 feet area,	5,074	12	5	8 x 8	8 x 8
Diamond Mine,	Few Bars on stone	6x6	6x6	5,074	12	8	7 x 6	4 x 5
Dexter Mine,	Natural,	8x7	8x7	17,160	12	6	7 x 8	6 x 6½
Valley Mine,	Natural,	8x7	8x7	11,520	12	6	7 x 9	6 x 8
Tip-Top Mine,	Natural,	8x7	8x7	24,080	12	7	6 x 8	7 x 8
Summit Mine,	Natural,	8x7	8x7	12,600	12	4	7 x 9	6 x 7
Eagle Mine,	Furnace,	9x7	9x7	17,280	12	4	6 x 7	6 x 9
Foundry Mine,	Furnace,	9x7	9x7	14,280	12	6	6 x 8	6 x 8
Morgan Mine,	Furnace,	9x7	9x7	13,920	12	5	6 x 7	6 x 8
Frick Mine,	Natural,	14 040	14 040	14,040	12	5	6 x 8	4½ x 8
Henry Clay Mine,	Furnace,	7x6	7x6	19,200	12	7	6½ x 8	4 x 8
White Mine,	Furnace,	5x6	5x6	12,000	12	4	6 x 8	4 x 8
Furnace Mine,	Exhaust steam,	5x6	5x6	4,000	12	8	6 x 8	4 x 4
Grace Mine,	Furnace,	6x5	6x5	10,640	12	3	7 x 8	7 x 8
Clinton Mine,	Natural,	13,160	13,160	5,376	12	2	7 x 8	7 x 8
Franklin Mine,	Natural,	21,600	21,600	21,600	12	20	7 x 8	7½ x 8
Tyrone Mine,	Fan,	6	6	6	3	20	12x16	12 x 16
Trotter Mine,	Steam exhaust,	6	6	6	3	20	12x16	8 x 5
Leisenring Mine,	Steam exhaust,	6	6	6	4	4	56	64
Wheeler, Mine,	Fan,	6	6	30,450	2	10	100	105
Morrell Mine,	Exhaust steam,	6	6	52,000	3	14	11½ x 13½	7½ x 11½
Youngstown Mine,	Fan,	6	6	27,763	2	20	7 x 6	6 x 7½
Leith Mine,	8,330	8,330	8,330	8,330	12	5	8 x 8	7 x 7
Carondolet Mine,	10,400	10,400	10,400	10,400	12	5	5 x 5	5 x 8
Mt. Equity Mine,	2,880	2,880	2,880	2,880	12	1	5 x 6	4 x 6
Cunard Mine,	Natural,	2,880	2,880	2,880	12	1	5 x 6	4 x 6

* Pillar work, none.

TABLE IV.—Showing an average monthly statement of the ventilation of the respective collieries in the Fifth Bituminous Mine District, for the year ending October 31, 1883.

NAME OF COLLIERY.	AUGUST.						SEPTEMBER.						OCTOBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Clinton,	200	6,000	130	3,120	120	2,880	100	10,080	170	9,520	100	10,640	208	11,648	183	10,416	222	12,432
Cunard,							185	11,840	160	6,720	170	8,330	105	11,840	150	5,490	140	6,860
Carandolet,							200	12,600	50	2,800	300	12,600		5,010		2,500		
Diamond,							78	4,368	63	3,528	96	5,376	113	6,328	93	5,208	126	7,056
Eagle,							400	16,800	90	3,780	230	17,230						
Franklin,							340	14,280	50	2,600	290	13,920						
Foundry,							300	14,440	50	2,800	330	14,040						
Frick,							475	19,950	160	9,600	479	27,763	478	20,076	163	9,780	477	27,445
Henry Clay,							291	29,100	67	4,328	290	30,450	302	30,200	66	4,221	287	30,135
Leith,	244	11,925	111	6,000	299½	31,447	300	14,400	40	1,920	340	14,280						
Leisenring, No. 1,	320	32,000	66½	4,256			420	10,500			160	10,400		5,674		2,000		
Morrell,							500	24,000	60	3,120	430	24,080						
Morgan,							225	12,600	225	12,600	235	13,100	250	14,000	250	14,000	260	14,560
Mt. Equity,							440	24,640	320	17,280	360	21,600	400	22,400	350	18,900	375	22,500
Palmer,							130	11,970	40	1,920	290	11,320						
Summit,							310	17,360	60	2,880	440	17,160						
Tyrone,	225	12,600	225	12,600	235	13,100	125	7,000	59	3,776	110	7,040	126	7,056	56	3,581	111	7,104
Trotter,	375	21,200	388	21,728	400	25,000	400	20,800	60	2,880	600	19,200	770	32,800			598	42,607
Tip-Top,																		
Valley,																		
Wheeler,	124	6,944	58½	3,744	108½	6,944	400	20,800										
White,																		
Youngstown,							400	15,000				52,060						

LIST OF ACCIDENTS occurring in the Mines of the Fifth Bituminous Coal District of Pennsylvania, for the year ended October 31, 1882.

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Sept. 13	John Williams,	27	Married, . .	1	. . . . .	. . . . .	Sept. 19	Hurt at three o'clock, P. M., by a fall of coal. Died same day at nine o'clock, P. M.
Sept. 20	James Martin, . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Sept. 19	Burned by gas in the mine heading, while on his way to work in the morning.
Oct. 5	Alexander Boyd, . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Leg broken, by being caught by a trip of full cars, he being a driver and his lamp going out.
Oct. 6	Thomas Conners, . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	A driver, had his collar-bone broken by getting on top of full car.

SIXTH DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania* :

SIR : I have the honor to submit to you my report for the two months ending October 31, 1883. Since my appointment, I have traveled one thousand three hundred and forty-three miles, and examined forty-six mines and forty-two sets of scales, a detailed account of which you will find enclosed. Strikes have prevailed in two parts of this district during the last month, namely : at Hites, Allegheny county, and DuBois, Clearfield county ; also in a portion of Armstrong county, whereby about twelve hundred men have been idle for over one month. I have to reiterate what has been asserted by my predecessors in reference to the inadequacy of transportation in Clearfield and Cambria counties. The Pennsylvania Railroad Company does not furnish near the amount of transportation that is required by the coal trade in this region, and, as a consequence, the development of these counties does not make progress as rapidly as they should, and a commodity that neither the rich nor poor can do without is kept out of the markets, and the trade that naturally belongs to this region is gradually drifting away to other places. I regret that I have to report to you three accidents that have taken place in this district during the two months of my administration. Two of them fatal, and one non-fatal, though severely injured. You will notice the similarity of these accidents—all took place under the same conditions, namely : while undermining their respective working-places, and all might have been prevented by a little more care and watchfulness on the part of those immediately working them. The statistical part is not so full as I could wish, on account of the scarcity of operators' blanks, which could not be supplied until they were received from Harrisburg.

The amount of coal mined, as reported is	214,549 tons.
Employèes in and about mines,	2,906
Number of mules,	300
Number of locomotives,	5
Number of tons mined per fatal accident,	107,274
Number of tons mined per non-fatal accident,	214,549

Yours, very respectfully,
JOHN M. WATT.

TARENTUM, ALLEGHENY COUNTY, PA.

DESCRIPTION OF MINES VISITED.**Natrona.**

Located on the Pennsylvania Railroad, Allegheny county. Is an old mine worked both on the double and single-entry system. Its drainage and ventilation were good. A six-foot diameter Murphy fan was in operation, discharging forty-one thousand cubic feet of air per minute. W. L. Richards, superintendent; Robert Boyd, mining-boss.

Watson Shaft

is situated at the north-west corner of Allegheny city, Allegheny county, and is three hundred and forty feet deep, 8'×6', divided into three compartments, two of these for cages and one for air, which is entirely too small for successful operation. Mr. Watson promised to put down another shaft as soon as the thickness of coal would justify him in doing so. The coal found in this shaft is supposed to be the Lower Freeport vein. Indeed, it has all the characteristics of the Freeport, only it was small, being only 2' 9" in thickness when I visited it. Should this venture prove a success it will go far to prove the theory that the Freeport vein underlies the Pittsburgh one, a subject about which there has been much contention in the past. The works are operated by Watson Bros. Alfred C. Jones, mining-boss.

Bellview Mine

is situated on the W. P. R. R. It is operated by the Bellview Coal Company. P. Y. Hite, superintendent. The mine is in good condition. Ventilation is by furnace, and is all that can be desired. I was called back to this mine on the 26th September to investigate the cause by which James S. Varner came to his death, and found, upon examination and hearing of evidence, that he, a coal miner, had commenced to undermine his working-place without having first carefully examined and taken down all loose coal or slate remaining from the last blasting, and thus thoughtlessly worked for some time, when a piece, about five hundred pounds, fell on him, breaking his neck and otherwise mutilating him. I append a copy of the coroner's inquest along with this report. J. J. Finney, mining-boss.

Etna and Vesuvius Mine

is also situated on the W. P. R. R. Operated by the Bellview Coal Company. P. Y. Hite, superintendent. Ventilation and drainage are good. J. J. Finney, mining-boss.

Coaldale Mine

is situated on the Pittsburgh and Western Railroad. They were employing twenty-five men when I visited it. Ventilation natural, and very deficient. They promised to put up a furnace in a short time. It is operated by T. W. Shaw. James W. Spencer, superintendent; John Hare, mining-boss.

CLEARFIELD COUNTY.**Rochester Mine**

is situated near DuBois, and is operated by Bell, Lewis, and Yates. This mine is in reasonably good condition. Drainage not all that it might be, but they promised to improve it. This is the largest mine I have found in my district, employing four hundred and fifty men when running to its full capacity, producing nineteen hundred tons per day. Hauling is done by locomotive for a distance of two thousand six hundred and eighty-one feet, and a separate system of ventilation is provided to take away the smoke. A Stultz washing-machine is used to wash their slack, from which an excellent quality of coke is made. A. J. McHugh, superintendent; Mr. Johns, mining-boss.

Dixon Mine

is also situated near DuBois, and is operated by the Falls Creek Coal Company. James McConnell, superintendent. It is worked on the double-entry system, and is in good condition. John B. Williams, mining-boss.

Hildrup Mine

is situated on the low grade division of the A. V. R. R., and is operated by the Sandy Lick Coal Company. L. S. Hay, superintendent. I found this mine in good condition. Ventilation by furnace. John E. Morton, mining-boss.

MINES SITUATED ON THE HOUTZDALE BRANCH OF THE TYRONE AND CLEARFIELD RAILROAD.**Sterling No. 1**

is located at Houtzdale, and operated by Robert Hare Powell & Co. James Campbell, superintendent. They have two drift-openings. Ventilated by four furnaces. Two of these furnaces are used extensively for the ventilation of the locomotive tunnel, which penetrates No. 1 mine a distance of nine hundred and seventy feet, and No. 2 six hundred feet. The other two furnaces are used to ventilate the miners' working-places. This is a very troublesome work to keep in good working-order, as the coal undulates very much, and have considerable trouble in the swamps with the water. Notwithstanding these difficulties, the works are in good condition. They had commenced to sink a shaft when I visited them to what is known as the "B" vein, and if the quality of coal found will warrant it the increase of production will be considerably augmented, and materially add to the wealth and prosperity of this whole region, which gives great promise in the near future to be the most productive in the bituminous region of this State. John Cumins, mining-boss.

Penn Mine

Is also at Houtzdale, and is operated by Reekirt Bros. D. E. Conrad, superintendent. When visited they were drawing the pillars, and preparing to open in another part of the same property. George Gould, mining-boss.

Franklin Mine.

Situated at Houtzdale, and is operated by the Kittaning Coal Company. C. B. Finley, superintendent. These works are in good condition, and are approached by two drifts about four hundred yards apart. Hauling is done by endless rope for a distance of three thousand eight hundred feet in No. 1 and one thousand two hundred feet in No. 2. A locomotive plies between these two drifts, and is run on to two pairs of friction wheels, and these fastened, and on being set in motion drives the machinery to which the wire rope is attached, and in this way bringing out at each trip about seventy tons of coal, the locomotive making alternate trips to each drift, signaling being done by electric battery. Ventilation is produced by 6×12 furnace and discharges forty thousand eight hundred and twelve cubic feet per minute. Mining-boss, E. A. Foster.

Moshannon Mine

Is situated on the Houtzdale branch of the T. and C. R. R. It is an old mine, nearly worked out, operated by the Moshannon Coal Company. P. B. Zentmyer, superintendent.

Derby Mine

Is situated on the Campbell branch of the T. and C. R. R., and is operated by T. Barnes & Brothers. This mine is ventilated by natural means and was very defective at the time of my visit. I advised them to put up a furnace, so that the air-current might run continuously one way. I was called the second time to this mine to examine the case of Samuel Benyor, who was severely hurt by coal falling on him, breaking his collar-bone and a number of ribs, and also inflicting internal injuries. This accident was purely accidental. He was aware that this piece of coal was loose and unsafe, and was preparing to post it up, when it unexpectedly fell with the above result. Richard Ashcroft, superintendent.

Cody Ridge Mine

Is situated on Campbell branch of the T. and C. R. R., and is operated by H. K. Grant. Ventilation is natural. I advised them to put up a furnace, which they promised they would do. Drainage is good. Stephen Sheldon, superintendent.

Colorado Mine

Is situated on Campbell branch of the T. and C. R. R., and is operated by A. & W. Barlow. These works are in good condition. Ventilation by furnace, discharging nine thousand cubic feet of air per minute when I visited it. Thomas Pilkington, mining-boss.

Lancashire, No. 1,

Is situated on the Campbell branch of the T. and C. R. R., and is operated by T. Barnes & Brothers, and is in good condition. Ventilation by furnace. Size, $4\frac{1}{2} \times 4\frac{1}{2}$.

Lancashire, No. 2,

Is situated on the Crowley Run branch of the T. and C. R. R. It is also operated by T. Barnes & Brothers. This is a new mine, and has been in operation only about three months, and is worked on the double-entry system. They had commenced to build a furnace when I was there. Richard Ashcroft, superintendent.

Victor, No. 1,

Is situated on the Campbell branch of the T. and C. R. R., and is operated by D. W. Holt & Co. This mine is in good condition. Ventilation excellent. They have a locomotive here which goes through a hill a distance of one thousand six hundred yards, hauling all the coal they are able to mine.

Victor, No. 2,

Is situated on the Crowley Run branch of the T. and C. R. R., and operated by Holt & Co. This is a new mine; has been in operation three months. They were putting in a furnace when I visited them.

Victor, No. 3,

Is also situated on the Crowley Run branch of the T. and C. R. R. This is also a new mine, having been in operation about three months. They are preparing to do a large business. John Walton, superintendent.

Glenwood Mine

Is situated on the Campbell branch of the T. and C. R. R., and is operated by Huff & Co. The ventilation is good, but the drainage is very defective. I have notified the superintendent, Mr. Campbell, who lives at Altoona, to have it remedied at once. I was called to this mine again to investigate the cause of the death of Richard Thornton, and found that it was caused by a fall of coal. He was working along with his father, a practical miner, and engaged at the time in mining a part of the working-place, when the coal in one of those unseen fissures gave way, falling upon him, killing him instantly. His age was twelve and a half years. A copy of the inquest is herewith appended. C. R. Colburn, mining-boss.

Cuba Mine

Is situated on the Campbell branch of the T. and C. R. R., and is operated by the Leonard Coal Company. This is an old mine and in poor condition. They are about to open a new drift which, if properly done, will give them relief from their present unsatisfactory condition. M. F. Gates, superintendent.

Keystone Mine

Is situated on the Crowley Run branch of the T. and C. R. R., and is operated by J. A. Losee. It has been in operation two months. It is opened on the double-entry system, and promises to be a prosperous work. John Woodcock, mining-boss.

Atlantic Mine

Is situated on the Crowley Run branch of the T. and C. R. R., and is operated by the Atlantic Coal Company. It is a new mine, having been in operation about four months. T. M. Estep, superintendent.

Logan Ridge Mine

Is situated on the Crowley Run branch of the T. and C. R. R., and is operated by H. J. Smith & Co. Ventilation is produced by natural means and was defective. I advised them to put up a furnace or some other motor whereby ventilation might be increased. Drainage was good. T. M. Simpson, mining-boss.

Coaldale Mine

Is situated on the Crowley Run branch of the T. and C. R. R., and is operated by John Reed & Co. Ventilation natural and not good. Seven men are employed here. I found the scales wrong at this place, which was rectified by next morning. Thomas Dougan, mining-boss.

Empire Mine

Is situated on the Morrisdale branch of the T. and C. R. R., and is operated by the Empire Coal Company. These works are in good condition. Ventilation by furnace, 6'×4'. Hauling is done by means of endless rope for a distance of one thousand seven hundred and fifty feet. They use one three-inch pump. Their drainage is also good. John Asheroft, superintendent; Evan Evans, mining-boss.

Pardee Mine

Is situated on the Morrisdale branch of the T. and C. R. R., and is operated by Duncan, Lingle & Co. Ventilation natural and defective. Drainage good. Advised a furnace to be put up. W. C. Lingle, superintendent.

Allport Mine.

Situated on the Morrisdale branch of the T. and C. R. R., and is operated by Holt & Schoonover. The old mine at this place is abandoned, and they have commenced to open a new drift, which promises better results. T. R. Morton, mining-boss.

Morrisdale Mines

Are situated on the Morrisdale branch of the T. and C. R. R., and are operated by B. T. Wigton & Son. This is the most extensive works in this region. They have four drift openings. Entries are driven double. Ventilation is by furnace and good. The drainage is No. 1. The mines are situate one and a quarter miles from the railroad, and the coal is brought hither with a locomotive and delivered into cars. W. H. Wigton, superintendent; William McCann, mining-boss.

Decatur Mine

Is situated on the Morrisdale branch of the T. and C. R. R., and is operated by John Nuttall & Co. This mine is in first-class condition in every respect. John Todd, mining-boss.

CAMBRIA COUNTY.**Rolling-Mill Mine**

Is situated at Johnstown, on the Pennsylvania railroad. It is operated by the Cambria Iron Company. John Fulton, general manager; Thomas Fulton, superintendent. This is a large mine, employing two hundred and fifty men. It is ventilated by an eight-foot diameter fan, and was discharging, when I visited it, thirty-seven thousand seven hundred and forty cubic feet per minute. Hauling is done by locomotive a distance of one mile. The works altogether are in first-class condition. John Nelson, mining-boss.

Cushon Mine

Is operated also by the Cambria Iron Company, and is ventilated by furnace, 6'×5'. Ventilation and drainage all that can be desired. Thomas Fulton, superintendent.

Lower Gantier Mine

Is operated by the Cambria Iron Company, and is ventilated by furnace, 6'×5'. Ventilation and drainage good. Thomas Fulton, superintendent; Rees G. Edwards, mining-boss.

Argyle Mine

Is situated at South Fork, on the Pennsylvania railroad, and is operated by Coulter & Huff. Ventilation is by furnace and is good. These works are in good condition. J. P. Wilson, superintendent; John Pratt, mining-boss.

Aurora Mine

Is a new mine, and is operated by G. W. Lukes. It is situated at South Fork, on the Pennsylvania railroad. G. W. Lukes, superintendent.

Stineman Mine

Is located on the Pennsylvania railroad, and is operated by J. C. Stineman. The ventilation is natural and not in a good condition. Mr. Stineman has written to me that he has given it an overhauling, and it is now much better. Frederick M. Croyle, mining-boss.

Euclid Mine

Is located on the Pennsylvania railroad, at South Fork, and is operated by the Euclid Coal Company, and was in a bad condition. The superintendent has written to me that it has been overhauled. They both needed it. J. C. Stineman, superintendent; Wendell Croyle, mining-boss.

South Fork Mine

Is situated at South Fork, on the Pennsylvania railroad. Ventilation natural and not good. This mine is somewhat difficult to drain, owing to the coal dipping constantly in front of them. They have a No. 7 Cameron pump at work. I urged them to widen out their shaft and build a furnace. This mine is operated by George B. Stineman. Henry Dunmyer, mining-boss.

COMMONWEALTH OF PENNSYLVANIA, } ss:
Clearfield county,

An inquisition taken and indented at Campbel's mines, in Decatur township, county of Clearfield, the 22d day of October, 1883, before me, James McKernan, justice of the peace of the said county, upon the view of the body of Richard Thornton, who was killed in Campbel's mines, aged twelve years, then and there lying dead, upon the oath of James Salasbury, Robert Jones, George Harkless, Z. M. George, R. S. Amber, Jacob Taylor, good and lawful men of the county aforesaid, who being sworn and affirmed to inquire, on the part of the Commonwealth, when, where, how, and after what manner the said Richard Thornton came to his death, do say, upon their oath and affirmation, that the said Richard Thornton came to his death by the accidental falling of a lump of coal upon him, (variously estimated to weigh from three to five hundred pounds,) crushing his skull and breaking his neck, while working underneath the aforesaid lump of coal in Campbel's mine, county aforesaid. His father, who was working in the same room with him when he was killed, is exonerated from all blame in the matter by the jury.

In witness whereof, as well the aforesaid justice of the peace, as the jurors aforesaid, have to this inquisition put their hands and seals on the day and year first above mentioned.

JAMES MCKERNAN, [L. S.]
Justice of the Peace.

JAMES SALASBURY, [L. S.]
 R. JONES, [L. L.]
 GEORGE HARKLES, [L. S.]

Z. M. GEORGE, [L. S.]
 R. S. AMBER, [L. S.]
 JACOB TAYLOR, [L. S.]
Jurors.

ALLEGHENY COUNTY, ss:

An inquisition indented, taken at East Deer township, in the county of Allegheny, on the 27th day of September, A. D. 1883, before me, Peter Dressler, coroner of the county aforesaid, upon the view of the body of James S. Varner, then and there lying dead, upon the oaths and solemn affirmations of Neal Diamond, Thomas Leslie, John Davis, William Garlich, William Smith, Florence M. Hall, good and lawful men of the county aforesaid, who being sworn and affirmed, and charged to inquire, on the part of the Commonwealth, when, where, and how, and after what manner the said James S. Varner came to his death, do say, upon their oaths and affirmations aforesaid, that the said James S. Varner, between twenty-four and twenty-five years of age, came to his death about half past ten o'clock on the morning of September 26, A. D. 1883, at the Bellview Company coal pit, in East Deer township, by a lot of loose coal falling on him and breaking his neck; and from all the evidence taken we, the jury, find it was accidental. And so the jurors aforesaid, upon their oaths and affirmations,

as aforesaid, say that the aforesaid James S. Varner, for the cause aforesaid, in manner and form aforesaid, came to his death, and not otherwise.

In witness whereof, as well of the aforesaid coroner, we, the jurors, have hereunto put our hands and seals on the day and year, and at the place above mentioned.

PETER DRESSLER, [L. S.]

Coroner.

NEAL DIAMOND, [L. S.]

FLORENCE M. HALL, [L. S.]

THOMAS LESLIE, [L. S.]

WILLIAM GARLICH, [L. S.]

JOHN DAVIS, [L. S.]

WILLIAM SMITH. [L. S.]

TABLE I.—Showing Location of Collieries in the Sixth Bituminous Mine District.

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Argyle,	Coulter & Huff,	Cambria,	J. P. Wilson,	South Fork, Cambria county.
Decatur,	Decatur Coal Company,	Clearfield,	John Nuttall,	Phillipsburg, Centre county.
Laurel Run,	Nuttall, Bacon & Co.,	do.	do.	do.
Sterling, Nos. 1 and 2,	R. Hare Powel & Co.,	do.	James Campbell,	Houtzdale, Clearfield county.
Webster, A. & B.,	Webster Coal Company, (Limited,)	do.	Philip Hartman,	do.
Webster, No. 3,	J. C. Scott & Sons,	Cambria,	do.	do.
Sonman, Nos. 1 and 2,	W. H. Piper & Co.,	do.	John Leahy,	Summerhill, Cambria county.
Meitzer, Ben's Creek,	E. W. Mentzer,	do.	E. W. Mentzer,	Hemlock, Cambria county.
Ben's Creek,	A. H. Smith,	do.	A. H. Smith,	Hollidaysburg, Blair county.
Dysart,	D. Laughman & Co.,	do.	Thomas Leahy,	Altoona, Blair county.
Standard,	C. A. Hughes,	do.	C. A. Hughes,	Hemlock, Cambria county.
Glen,	J. R. Snulih,	do.	James Anderson,	Altoona, Blair county.
Natrona,	Pennsylvania Salt Manufacturing Company,	Armstrong,	W. H. Richards,	Kelly, Armstrong county.
Watson Shaft,	Watson Brothers,	Allegheny,	L. Watson,	Natrona, Allegheny county.
Coaldale,	Glenshaw Coal Company,	do.	Samuel M. Spencer,	Allegheny City.
Bellview,	Bellview Coal Company,	do.	P. Y. Hite,	Glenshaw, Allegheny county.
Etna and Vesuvius,	do.	do.	do.	Hites, Allegheny county.
Lancashire, Nos. 1 and 2,	T. Barnes & Brothers,	do.	Richard Ashcroft,	do.
Derby,	do.	Clearfield,	do.	Phillipsburg, Centre county.
A. & W. H. Barlow,	A. & W. H. Barlow,	do.	W. H. Barlow,	do.
Cody Ridge,	H. K. Grant,	do.	do.	do.
Glenwood,	Huff & Co.,	do.	Stephen Sheldon,	do.
Excelsior,	Fisher, Miller & Co.,	do.	C. Campbell,	Altoona, Blair county.
Penn.	Reakirt Brothers & Co.,	do.	Thomas Richards,	Brislin, Clearfield county.
Columbia,	J. L. Mitchell & Co.,	do.	George Gould,	Houtzdale, Clearfield county.
Empire,	John Ashcroft,	do.	J. L. Mitchell,	Osceola Mills, Clearfield county.
Morrisdale,	R. B. Wigton & Sons,	do.	John Ashcroft,	Phillipsburg, Centre county.
Pardee,	W. C. Lingle & Co.,	do.	W. Wigton,	Morrisdale, Clearfield county.
Allport,	Holt, Schoonover & Co.,	do.	W. C. Lingle,	Phillipsburg, Centre county.
Keystone,	J. A. Losee,	do.	J. M. Holt,	do.
Logan Ridge,	H. J. Smith & Co.,	do.	J. A. Losee,	Osceola Mills, Clearfield county.
Atalanta,	Atlanta Coal Company,	do.	H. J. Smith,	do.
Coaldale,	Bell & Chipman,	do.	T. M. Estep,	do.
Rochester Mine,	Red, Lewis & Yates,	do.	John Reed,	do.
Hildrup,	Sandy Lick Coal Company,	do.	A. J. McHugh,	Du Bois, Clearfield county.
Falls Creek,	McConnell Brothers,	do.	L. S. Hays,	do.
Moshannon,	Moshannon Coal Company,	do.	James McConnell,	Victor, Clearfield county.
Mapleton,	Berwind, White & Co.,	do.	P. B. Zentmyre,	Houtzdale, Clearfield county.
Ocean, Nos. 1 and 2,	John Whitehead & Co.,	do.	W. A. Crist,	Osceola Mills, Clearfield county.
Eureka, Nos. 1 and 2,	Berwind, White & Co.,	do.	A. G. Spears,	Houtzdale, Clearfield county.
Eureka, Nos. 3 and 4,	do.	do.	Peter Cameron,	do.
	do.	do.	Alfred Crist,	Osceola Mills, Clearfield county.

TABLE II.—A statement showing characteristics, number of employes, production, &c., of the respective collieries in the Sixth Bituminous Mine District for the year ending October 31, 1883.

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi- Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners— men.	Number of miners— boys.	Other employes.	Total employes.	Number of mules in- side.	Number of mules out- side.	Number of locomotives.	Total production of coal in tons.
Argyle,	Semi-bituminous,	Drift,	1	1	20	1	46	6	6	58	5	2	..	14,905
Bellevue,	do.	Drift,	1	1	20	1	53	3	16	72	13	3	..	2,631
Ben's Creek,	do.	Drift,	1	1	20	1	25	..	7	32	3	2	..	3,469
Columbia,	do.	Drift,	1	1	20	1	24	..	2	26	2	2	..	1,078
Coaldale,	do.	Drift,	1	1	20	1	35	2	6	43	2	1	..	1,114
Cody Ridge,	do.	Drift,	1	1	20	1	18	4	3	25	2	1	..	12,000
Colorado,	do.	Drift,	1	1	20	1	16	4	4	24	2	2	..	1,500
Cushon,	do.	Drift,	1	1	20	1	60	6	8	74	6	..	..	9,906
Derby,	do.	Drift,	1	1	20	1	40	2	6	48	5	..	..	3,447
Decatur,	do.	Drift,	1	1	20	1	32	5	5	42	4	3	..	6,940
Dixon,	do.	Drift,	1	1	20	1	60	7	7	74	4	1	..	2,200
Dysart,	do.	Drift,	1	1	20	1	53	3	16	72	13	3	..	6,800
E. & V.,	do.	Drift,	1	1	20	1	100	5	10	115	6	..	..	8,297
Empire,	do.	Drift,	1	1	20	1	100	5	10	115	6	..	..	18,000
Eureka, No. 2,	do.	Drift,	1	1	20	1	277	18	25	320	22	9	..	19,279
Excelsior,	do.	Drift,	1	1	20	1	110	20	10	140	13	6	..	15,000
Franklin,	do.	Drift,	1	1	20	1	132	13	40	207	25	1	1	10,700
Glenn,	do.	Drift,	1	1	20	1	24	1	5	30	2	..	..	1,178
Glenwood,	do.	Drift,	1	1	20	1	10	3	6	19	3	1	..	1,400
Hildrup,	do.	Drift,	1	1	20	1	70	14	8	92	8	1	..	5,600
Lancashire, No. 1,	do.	Drift,	1	1	20	1	35	5	10	50	5	2	..	10,213
Lancashire, No. 2,	do.	Drift,	1	1	20	1	27	3	2	32	2	..	..	5,747
Laurel Run,	do.	Drift,	1	1	20	1	50	9	8	67	7	3	..	7,972
Moshannon,	do.	Drift,	1	1	20	1	33	..	9	42	6	1	..	3,140
Morrisdale,	do.	Drift,	1	1	20	1	150	25	15	190	12	9	1	12,000
Natrona,	do.	Drift,	1	1	20	1	36	2	13	51	11	1	..	4,837
Ocean, No. 1,	do.	Drift,	1	1	20	1	70	10	8	97	3	1	..	17,500
Ocean, No. 2,	do.	Drift,	1	1	20	1	30	..	6	36	3	..	..	6,200
Pacific, No. 1,	Semi-bituminous,	Shaft,	2	1	50	4	125	26	24	178	17	..	..	18,000
Pardee,	do.	Drift,	1	1	20	1	18	2	2	22	2	..	..	1,377
Penn.,	do.	Drift,	1	1	20	1	22	3	3	28	..	..	..	1,555
River View,	do.	Drift,	1	1	20	1	25	3	5	33	2	..	..	1,037
Rolling-Mill,	do.	Drift,	1	1	20	1	175	23	50	248	19	..	2	27,425

TABLE IV.—*Showing an average monthly statement of the ventilation of the respective collieries of the Sixth Bituminous Mine District, for the year ending October 31, 1883.*

LIST OF ACCIDENTS occurring in the mines of the Sixth Bituminous Coal District of Pennsylvania, for the year ending October 31, 1883.

Date of accident.	NAME OF PERSON IN- JURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of Investiga- tion.	Nature and Cause of Accidents.
Sept. 26	James Vernick,	24	Single, . . . . .	. . . . .	. . . . .	. . . . .	Sept. 27	Killed by coal falling on him and breaking his neck.
Oct. 22	Richard Thornton,	12	. . . . .	. . . . .	. . . . .	. . . . .	Oct. 22	Killed by coal falling on him, crushing him, and breaking his neck.
Oct. 24	Samuel Benyon,	58	Married, . . . . .	. . . . .	. . . . .	. . . . .	Oct. 30	Shoulder blade broken and injured internally.

LIST OF ACCIDENTS occurring in the mines of the Sixth Bituminous Coal District of Pennsylvania, for the year ending October 31, 1882.

Date of accident.	NAME OF PERSON IN- JURED.	AGE.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of Investiga- tion.	Nature and Cause of Accidents.
Sept. 26	James Verner,	24	Single, . . . . .	. . . . .	. . . . .	. . . . .	Sept. 27	Killed by coal falling on him and breaking his neck.
Oct. 22	Richard Thornton,	12	. . . . .	. . . . .	. . . . .	. . . . .	Oct. 22	Killed by coal falling on him, crushing him, and breaking his neck.
Oct. 24	Samuel Benyon,	58	Married, . . . . .	. . . . .	. . . . .	. . . . .	Oct. 30	Shoulder blade broken and injured internally.

CONSPIRACY LAWS.

Under the above heading we do not intend to do more than present to the public the law of this Commonwealth relative to combinations of workingmen to advance the price of wages. It would seem that the first and only case in which workingmen were indicted, in this Commonwealth, for conspiring to raise the price of wages, before the passage of any statute law governing the same, was that entitled the "Trial of the Journeymen Boot and Shoemakers." This case was tried and determined in the mayor's court for the city of Philadelphia, on an indictment for conspiracy, found at the January sessions 1806, against several journeymen boot and shoemakers, who had formed a combination to raise the price of their wages; two of this number, being satisfied with the wages paid to them individually, refused to act with the majority; for this reason they and their employer were ostracized or boycotted. For this action on the part of the majority of the workingmen, criminal proceedings were begun by the employer. It was in evidence that he was, through their actions, subjected to great loss. On the part of the defense, no serious attempt was made to rebut the testimony offered by the prosecutors relative to the main facts upon which the indictment was found, but it was contended that the section of the common law of England under which the action was sought to be maintained was not a law of this Commonwealth, first, because it was repugnant to our Constitution and free institutions; and, second, that as no statute law had been passed in this Commonwealth regulating the price of wages, that, therefore, the indictment, founded on a prohibitory section of the common law of England, against combinations to raise the price of wages, could not be sustained.

In support of this proposition, the defense showed that in England statute laws had been passed which regulated the price of wages in that country, admitting that if such was the case in this Commonwealth the indictment could be sustained so far as the law was involved, but, in the absence of any such statute, or legal custom regulating the price of wages, then, admitting the evidence as to what occurred to be indisputable, the prisoners were not guilty of any crime known to this Commonwealth, and should be acquitted.

The defense cited numerous authorities in support of their position, only one of which, however, we will quote, viz: An extract from Tucker's Blackstone, Ap. p. 405-6. Writing of the laws of England and their validity here after the severance from the Mother Country, he says: "For they (the laws) no longer possessed even a potential existence, (as being the laws of the British Nation, and, as such, extending, in the theoretical strictness, to the remotest part of the empire,) because the connection upon

which this theoretical conclusion might have been founded was entirely at an end, and having never obtained any authority from usage and custom, they were destitute of every foundation upon which any supposed obligation could be built. This is a regular consequence of that undisputed right which every free State possesses, of being governed by its own laws.

* * * And as all laws are either written, or acquire their force and obligation by long usage and custom, which imply a tacit consent, it follows, that where these evidences are wanting, there can be no obligation in any supposed law." The judge in his charge to the jury maintained the action of the prosecutors and instructed the jurors to find a verdict of guilty if they were satisfied that the combination to raise the wages of the defendants had been proven. The jury returned a verdict of guilty. We have stated this much by way of preface to the original of all conspiracy laws against combinations of workmen to raise the price of wages. We now quote the laws in full which were cited in the trial above referred to.

Shaws' Jus., p. 226, 5 *El.*, c. 4, § 15. "If any butchers, brewers, bakers, poulterers, cooks, coster-mongers, or fruiterers, shall conspire, covenant, promise, or make any oath that they shall not sell their victuals but at certain prices, or if any artificers, workmen, or laborers do conspire, covenant, or promise together, or make any oaths that they shall not make or do their work but at a certain price or rate, or shall not enterprise or take upon them to finish what another hath begun, or shall do but a certain work in a day, or shall not work but at certain houses and times; every such person so conspiring, &c., shall forfeit for the first offense 10£, and if he pay not the same within six days shall suffer twenty days' imprisonment, and for the second offense shall forfeit 20£, &c., and for the third 40£, &c. And if any such conspiracy, covenant, or promises to be made by any society, brotherhood, or company, of any craft, mystery, or occupation of the victuallers above mentioned, with the presence or consent of the more part of them, that there immediately upon such act of conspiracy, &c., over and besides the particular punishment before appointment, their corporation shall be dissolved; and that the said offenses shall be determined at the assizes of the peace, or court-leet.

By 25, Henry 8, chapter 2, it is enacted "that to remedy the frequent rise of the price of cheese, butter, capons, hens, chickens, and other necessary victuals for man's sustenance by ingrossing and regrating the same, the Lord Chancellor and other high officers of the State, &c., may, upon complaint of any enhancing of the prices of such victuals without ground or reasonable cause, in any part of the King's dominions, set and tax reasonable prices of such victuals."

Burns' Jus., p. 164-5. "The justice of every shire, riding and liberty, or the more part of them being then resiant within the same, and the sheriff, if he conveniently may, and every mayor and other head officer within any city or town corporate, wherein is any justice of the peace within the limits of the said city or town corporate and of the said cor-

poration, shall early in Easter sessions, or within six weeks next after, assemble and call unto them such discreet and grave persons as they shall think meet, and having respect to the plenty or scarcity of the time, and other circumstances. shall have authority to limit, rate, and appoint the wages, as well as such the said articles, handicraftsman, husbandry, or any other laborer, servant, or workman whose wages in times past have been by any law or statute rated and appointed, as also the wages of all other laborers, artificers, workmen, apprentices of husbandry, which have not been rated, as they shall think meet by their discretions, to be rated, limited, or appointed by the year, or by the day, week, month, or otherwise, with meat and drink, or without meat and drink, and what wages every workman or laborer shall take by the great for mowing, reaping, or threshing of corn and grain, or for mowing or making of hay, or for ditching, paving, railing, or hedging, by the rod, perch, lugg, yard, pole, rope, or foot, and for any other kind of reasonable labor or service. And by the 1 James, C, 6th, the said act of 5th Elizabeth shall extend to the rating of wages of all laborers, weavers, spinsters, and workmen or workwomen whatsoever, either working by the day, week, month, year, or taking any work by the great or otherwise.

If any person, upon the proclamation published, shall directly or indirectly, retain or keep any servant, workman, or laborer, or shall give any more or greater wages, or other commodity than shall be so appointed in the said proclamation, he shall, on conviction before any of the justices, or other head officers above mentioned, be imprisoned for ten days, without bail, and shall forfeit 5£, half to the King, and half to him that shall sue before the said justices in their sessions, and every person that shall be so retained, and take wages contrary to the said statute of the 5, El., or to the said proclamation, and shall be thereof convicted before the justices aforesaid, or any two of these, or before the mayor or other head officers aforesaid, shall be imprisoned for twenty-one days without bail. And every retainer, promise, gift, or payment of wages or other thing contrary to the said act, and every writing and bond to be made for that purpose shall be void."

It would appear from the laws just cited that if the ruling of the court was correct. that manufacturers and operators in this Commonwealth are even now liable to criminal prosecution whenever they conspire to raise the price of their products, or to lower the existing rates of wages, and furthermore, that any contract between them and their employés, making a different standard for weights and measures in the performance of work and labor than that established by the Legislature, is void. We find no act of the Legislature bearing on this question of conspiracy until that of March 31, 1860, § 128, which reads as follows: "If any two or more persons shall falsely and maliciously conspire, and agree to cheat and defraud any person, or body corporate of his or their moneys, goods, chattels, or other property, or to do any other dishonest, malicious, and unlawful act

to the prejudice of another, they shall be guilty of a misdemeanor, and, on conviction, be sentenced to pay a fine not exceeding five hundred dollars, and to undergo an imprisonment, by separate or solitary confinement at labor, or by simple imprisonment, not exceeding two years." By an act approved May 8, 1869, it was declared: "It shall be lawful for any and all classes of mechanics, journeymen, tradesmen, and laborers to form societies and associations for their mutual aid, benefit, and protection, and peaceably to meet, discuss, and establish all necessary by-laws, rules, and regulations to carry out the same; all acts or parts of acts inconsistent herewith are hereby repealed." There being some difficulty in the mining regions of Centre and Clearfield counties, these counties were excluded from the benefit of the act.

By an act approved the 14th day of June, 1872, it was declared "That from and after the passage of this act, it shall be lawful for any laborer or laborers, workingman or workingmen, journeyman or journeymen, acting either as individuals or as the member of any club, society, or association, to refuse to work or labor for any person or persons whenever in his, her, or their opinion the wages paid are insufficient, or the treatment of such laborer or laborers, workingman or workingmen, journeyman or journeymen, by his, her, or their employer, is brutal or offensive, or the continued labor by said laborer or laborers, workingman or workingmen, journeyman or journeymen would be contrary to the rules, regulations, or by-laws of any club, society, or organization to which he, she, or they might belong, without subjecting any person or persons so refusing to work or labor to prosecution or indictment for conspiracy under the criminal laws of this Commonwealth: *Provided*, That this act shall not be held to apply to the member or members of any club, society, or organization, the constitution, by-laws, rules and regulations of which are not in strict conformity to the Constitution of the State of Pennsylvania, and to the Constitution of the United States: *Provided*, That nothing herein contained shall prevent the prosecution and punishment under existing laws of any person or persons who shall, in any way, hinder persons who desire to labor for their employés from so doing, or other persons from being employed as laborers. That all acts, or parts of acts, conflicting with the above section be, and the same are hereby repealed."

It will be observed that the statute just referred to makes provision for punishing working men who hinder those desiring to work for their *employés*, not employers. This is evidently a typographical error, but as it now stands in its authorized published form it is without sense and void.

To remedy any discrepancy in the act of June 14, 1872, and to more fully define unlawful hindering of persons desiring to work, an act was approved on April 20, 1876, which declares that the foregoing act of June 14, 1872, "shall be so construed that the use of lawful or peaceful means, having for their object a lawful purpose, shall not be regarded as 'in any

way hindering' persons who desire to labor; and the use of force, threat, or menace of harm to persons or property shall alone be regarded as in any way hindering persons who desire to labor for their employers from so doing, or other persons from being employed as laborers."

The foregoing, we believe, embraces all legislation, both legislative and judicial, on what is generally known as the "conspiracy laws" of the Commonwealth, in so far as such laws relate to workingmen.

AN ACT

To regulate and license the business of intelligence or employment officers in all cities of the first class in this Commonwealth.

SECTION 1. *Be it enacted, &c.*, That from and after the passage of this act, it shall not be lawful for any person or persons to keep open, or establish any intelligence or employment office, for the purpose of procuring or obtaining, for money or other valuable consideration, any work, employment or occupation for persons seeking the same, or to otherwise engage in the business of procuring employment for others for money or other valuable consideration, in any city of the first class in this Commonwealth, without first having obtained from the treasurer of the city, in which such office is situated or such business is carried on, a license so to do, and having paid therefor to the treasurer of the said city in which such office is situated or business carried on, such sum of money as is hereinafter specified.

Intelligence offices
to be licensed.

SECTION 2. Every person applying for a license under this act shall pay to the city treasurer, as aforesaid, an annual license fee of fifty dollars, and upon payment of said sum of money shall be entitled to receive a certificate signed by the said city treasurer, setting forth that the license fee has been paid, and that such applicant has been licensed to pursue the business of an employment agent, for the period of one year from the date of said certificate, said license fee to be paid to the said city treasurer the first day of June, in each year; and it shall be the duty of any person obtaining said certificate or license, to keep said certificate or license publicly exposed to view, in the office used by him for carrying on said business, with a printed schedule of the fees to be charged for his services.

License fee.

Certificate to be
given on payment
of fee.

To be kept publicly
exposed.

Schedule of fees to
be printed, &c.

SECTION 3. If any person, not being licensed as aforesaid, shall engage in the business of an employment agent, or in any way act as a broker between employer and employé, and take money or other valuable consideration for such services, or if any person being so licensed shall refuse to exhibit his certificate or license, he shall be deemed guilty of a misdemeanor, and on conviction thereof shall be sentenced to pay a fine not exceeding one hundred dollars, at the discretion of the court.

Violation of act
deemed a misde-
meanor.

Penalty.

SECTION 4. If any person engaged in the employment agent business, and having a license as heretofore provided by this act, shall give false information or make false pro-

False information
deemed a misde-
meanor.

Penalty.

mises concerning any work or occupation, or any one obtaining his services for procuring such work or occupation, or shall charge a greater sum for his services than are provided for in said schedule, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall forfeit his license and pay a fine not exceeding two hundred dollars, and undergo an imprisonment in the county jail of not more than twelve months, or both or either at the discretion of the court.

APPROVED—The 25th day of May, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To authorize the creation, and to provide for the regulation of voluntary tribunals, to adjust disputes between employers and employed, in the iron, steel, glass, textile fabrics and coal trades.

Preamble.

WHEREAS, Differences arise between persons engaged in the iron, steel, glass, textile fabrics and coal trades in this State, and strikes and lock-outs result therefrom, which paralyze these important industries, bring great loss upon both employer and employed, and seem to find their only solution in starvation or in force, which does not accord with the teachings of humanity and the true policy of our laws ;

And whereas, Voluntary tribunals, mutually chosen, with equality of representation and of rights, and a frank discussion therein by the persons interested, of the business questions involved, are the plain paths to mutual concession and cessation of strife, and the choice of an umpire by the parties themselves, to whose arbitrament the matters in dispute are to be submitted for final decision, if they shall fail to agree, is in accord with the practice and policy of this Commonwealth ; therefore,

President judge to
issue license for es-
tablishment of tri-
bunals.

SECTION 1. *Be it enacted, &c.*, That the presiding judges of the courts of common pleas, or the president judges thereof, in chambers, in the counties of Philadelphia and Allegheny, and of each of the other judicial districts of this Commonwealth, shall have power and upon the presentation of the petition, or of the agreement hereinafter named, it shall be the duty of each of them to issue, in the form hereinafter named, a license or authority for the establishment, within their respective districts, of tribunals for the consideration and settlement of disputes between employers and employed in the iron, steel, glass, textile fabrics, and coal trades and each of them.

SECTION 2. The said petition or agreement shall be substantially in the form hereinafter given, and the petition shall be signed by at least fifty persons employed as workmen, by five or more separate firms, individuals, or corporations within the county where the petitioners reside, or by at least five employers, each of whom shall employ at least ten workmen, or by the representatives of a firm, individual, or corporation employing not less than seventy-five men in their business; and the agreement shall be signed by both of said specified numbers and persons: *Provided*, That if, at the time the petition is presented, a dispute exists between the employers and the workmen, and that as a consequence there is a suspension of work, or owing to the nature of the dispute a suspension is probable, the judge before whom said petition is presented, shall require testimony to be taken as to the representative character of said petitioners, and if it appears that the said petitioners do not represent the will of a majority, or at least one half of each party to the dispute, the license for the establishment of the said tribunal may be denied.

Form of petition designated.

By whom signed.

When testimony as to character of petitioners may be required.

And license refused.

SECTION 3. The persons signing said petition as workmen, shall each have been a resident of the judicial district in which the petition shall be presented, for at least one year; shall have been engaged in some branch of the trade they profess to represent, for at least two years, and be a citizen of the United States. The persons signing the same as employers, shall be citizens of the United States, and shall be, and shall have been actually engaged in some branch of the iron, steel, glass, textile fabrics or coal trade, within the judicial district for at least one year, and shall each employ therein at least ten workmen, of the class hereinbefore described, and may be a firm, individual, or corporation, and the said petition shall be verified by the oaths of at least two of the signers, attesting the truth of the facts stated therein, and the qualifications of the signers thereto.

Qualifications of petitioners.

Petition to be verified by oath.

SECTION 4. If the said petition shall be signed by the requisite number of both employers and workmen, and be in proper form and contain the names of the persons to compose the tribunal, being an equal number of each side, and of the umpire mutually chosen, the judge shall forthwith issue a license, substantially in the form hereinafter given, authorizing the existence of such tribunal and fixing the time and place of the first meeting thereof, which shall be made a record in the court of common pleas, over which said judge presides.

When license may issue.

Time and place of meeting to be fixed by judge.

When conditional
license may issue.

And petition be dis-
missed.

One tribunal may be
created for each
trade.

Term and jurisdic-
tion.

Vacancies, how
filled.

Removal not to
create vacancy.

Disputes in one
county may be re-
ferred to adjoining
county.

How umpire to be
chosen.

When he shall act.

His award final on
all matters submit-
ted.

When binding.

Composition of tri-
bunal.

SECTION 5. If the petition shall be signed by the requisite number of either workmen or employers, and not by both, and be in proper form, the judge shall issue his license for the creation of such tribunal, conditioned upon the assent and agreement of the necessary number of that side to the issue, which shall not have signed the petition; which assent shall be in writing, signed by the requisite number, and contain the names of the members of the tribunal, and the umpire, and upon the presentation of such petition and assent, the judge shall issue his license for a tribunal, as provided in section four of this act; but if no such assent shall be obtained, within sixty days from the date of the conditional license, the petition shall be taken as dismissed, but if the assent be signed, a record shall be made of the license, as if made upon original agreement.

SECTION 6. One of the said tribunals may be created for each of the trades named in the first section of this act, in each judicial district; they shall continue in existence for one year from the date of the license creating them, and may take jurisdiction of any dispute between employers and workmen, who shall have petitioned for the tribunal, or have been represented in the petition therefor, or who may submit their disputes in writing to such tribunal for decision. Vacancies occurring in the membership of the tribunal, shall be filled by the judge, out of the three names presented to him by the members of the tribunal remaining of that class in which the vacancies occur. Removal to an adjoining district shall not cause a vacancy, in either the tribunal or the post of umpire. Disputes, occurring in one county, may be referred to a tribunal already existing in an adjoining county. The place of umpire, in any of said tribunals and vacancies occurring in such place, shall only be filled by the mutual choice of the whole of the representatives, of both employers and workmen constituting the tribunal. The umpire shall only be called upon to act, after disagreement is manifested in the tribunal by failure during three meetings held, and full discussion had. His award shall be final and conclusive upon such matters only, as are submitted to him in writing and signed by the whole of the members of the tribunal, or by parties submitting the same, and upon questions affecting the price of labor; it shall in no case be binding upon either employer or workmen, save as they may acquiesce or agree therein after such award.

SECTION 7. The said tribunal shall consist of not less than two employers or their representatives, and two workmen.

The exact number, which shall in each case constitute the tribunal, shall be inserted in the petition or agreement, and they shall be named in the license issued. The said tribunal when convened, shall be organized by the selection of one of their number as chairman and one as secretary, who shall be chosen by a majority of the members, or if such majority cannot be had after two votes, then by secret ballot, or by lot as they prefer.

Organization.

SECTION 8. The members of the tribunal shall receive no compensation for their services from the city or county, but the expenses of the tribunal, other than fuel, light and the use of room and furniture, may be paid by voluntary subscription, which the tribunal is authorized to receive and expend for such purposes. Each city or county, in which such tribunal shall be created, shall pay for the fuel, lights and the use or rent of a room and furniture, for the same which it is hereby authorized to obtain, but the cost of the same shall only be paid upon sworn vouchers, submitted to, and approved by, the proper judge of the judicial district.

Compensation.

Fuel, lights, and room.

Cost.

SECTION 9. When no umpire is acting, the chairman shall have power to administer oaths, sign subpoenas, orders, notices and other proceedings of the board; and when the umpire shall be acting, this authority shall be vested in him, and all of the authority vested in boards of arbitrators, by the compulsory arbitration act of June sixteenth, one thousand eight hundred and thirty-six, for procuring witnesses, preserving order and obtaining proofs, shall be and is hereby vested in such umpire when acting. Attorneys-at-law, or other agents of one side or the other, shall not be permitted to appear, or take part in any of the proceedings of the tribunal or before the umpire; but the same shall be as far as possible voluntary, and upon examination of proofs and witnesses, by the tribunal itself and the umpire. When the umpire is acting, he shall preside; and his determination upon all questions of evidence, or otherwise in conducting the inquiries then pending, shall be final. Committees of the tribunal consisting of an equal number of each class, may be constituted to examine into any question in dispute, between employers and workmen, submitted to the tribunal, and such committee may hear and settle the same finally, when it can be done, by an unanimous vote; otherwise the same shall be reported to the full tribunal, and be there heard, as if the question had been originally examined by it. The said tribunals in connection with the umpire, shall each have power to make, ordain and en-

Powers of chairman, when no umpire is acting.

Powers of umpire.

Attorneys or agents not to appear.

Decisions of umpire on questions of evidence, &c., final.

Committees may be constituted.

Their duties.

Rules for the government of tribunals to be adopted.

force rules, for the government of the body when in session, to enable the business to be proceeded with in order, and to fix its sessions and adjournments; but such rules shall not conflict with this statute, nor with any of the provisions of the Constitution and laws of Pennsylvania.

Questions in dispute to be plainly defined in writing.

Submission, &c., to be stated.

Umpire to be sworn.

And file award within ten days.

How made a matter of record.

Duties of the judge.

When entered of record, award to be final, and judgment entered, &c.

Citation of act.

Form of petition.

SECTION 10. Before the umpire shall proceed to act, the question or questions in dispute shall be plainly defined in writing, and signed by the members of the tribunal, or a majority thereof of each class, or by the parties submitting the same; and such writing shall contain the submission of the decision thereof to the umpire by name, and shall provide that his decision thereon, after hearing shall be final. The umpire shall be sworn to impartially decide the question submitted. The submission and his award may be made in the form hereinafter given, and said umpire must make his award within ten days, from the time the question or questions in dispute are submitted to him. When such award shall be made and signed by the umpire, it may be made a matter of record, by producing the same within thirty days, with the submission in writing, to the proper judge. If he approves the same, he shall endorse his approval thereon, and direct the same to be entered of record. When so entered of record, it shall be final and conclusive, and the proper court may on motion of any one interested, enter judgment thereon, and when the award is for a specific sum of money, may issue final and other process, to enforce the same.

SECTION 11. This act shall be cited and quoted as the "voluntary trade tribunal act, of one thousand eight hundred and eighty-three."

SECTION 12. The form of the joint petition or agreement, praying for a tribunal as named in section four of this act, may be as follows:

To the presiding judge . . . judicial district, or to the presiding judge of the court of common pleas, the county of . . . (as the case may be.)

The subscribers hereto, citizens of the said judicial district, and of the United States, being the number thereof and with the qualifications required by the act known as, "the voluntary trade tribunal act, of one thousand eight hundred and eighty-three," being desirous of establishing a tribunal under said act for the settlement of disputes in the . . . trade, and having agreed upon A. B. et cetera, representing the employers, and C. D. et cetera, representing the workmen, as members of the said tribunal,

who each possess the qualifications required by said act,
and having also agreed upon E. F. . . . , of . . . ,
as the umpire of the said tribunal, pray that a license for a
tribunal in the trade may be issued to them.

And they will ever pray et cetera.

EMPLOYEES.	Names.	Residence.	Works.	No. employees.

EMPLOYES.	Names.	Residence.	By whom employed.

The oath to be annexed to such joint petition shall be Form of oath.
substantially as follows:

PENNSYLVANIA, } ss:
 . . . county. }

A. B. and C. D., two of the signers of the foregoing joint petition, being duly sworn, say that the facts set forth in the same are true; that the five employers, signing such petition, have been actually engaged in the _____ trade within this judicial district, for at least one year, and each do now employ at least ten workmen in their said business, and the fifty workmen signing said petition have each been resident therein for one year, have been engaged in the _____ trade as workmen, for at least two years, and (have been or are) actually employed at the places named in the signature to said petition in such trade.

. A. B.

. C. D.

And the same shall be sworn and subscribed, before a justice of the peace or alderman, of the proper district.

SECTION 13. The license to be issued upon such joint petition may be as follows: Form of license.

PENNSYLVANIA, } ss:
 county. }
 Judicial District.

WHEREAS, The joint petition and agreement of five employers and fifty workmen has been to me presented, and now placed on record, praying the creation of a tribunal for the settlement of disputes in the . . . trade within this district, and naming A. B., C. D., E. F., and G. H. as members of said tribunal, and I. J. as the umpire thereof. Now in pursuance of the authority given by the voluntary trade tribunal act of 1883, I have licensed and authorized, and do hereby license and authorize the said named parties, to be and exist as a tribunal under the said statute, for the settlement of disputes between employers and workmen in . . . trade, for the term of one year, with all the powers conferred by the voluntary trade tribunal act of 1883, and it shall meet and organize on the . . . day of A. D. 188 , at

A record hath been made of this license.

Witness my hand and the seal of the Court, at this day of , A. D. 188 .

.
Presiding Judge.

Form of submission.

SECTION 14. The forms of the submission, and of the awards may be as follows:

FORM OF SUBMISSION.

We, A. B. of one part and C. D. of the other part, under the provisions of voluntary trade tribunal act of one thousand eight hundred and eighty-three, have submitted and referred, and do hereby submit and refer unto the umpirage and decision of E. F., the umpire of the trade tribunal of the . . . trade for the judicial district, the following subject matter, that is to say,

[Here state fully and distinctly the question submitted.] and his decision and determination upon the same, shall be binding upon us, and final and conclusive upon the question thus submitted, and we pledge ourselves to abide by, and carry out the decision of the umpire when made.

Witness our hands and seals this day of Anno Domini one thousand eight hundred and eighty-

[Signatures.]

FORM OF AWARD.

I, E. F. the umpire of the trade tribunal, of the Form of award.
judicial district, in pursuance of the foregoing instructions
having been sworn and having heard the parties and their
proofs bearing upon the question submitted for my decision
and umpirage, have decided and do hereby decide as fol-
lows:

[Here insert distinctly the decision.]

and do hereby certify to the president judge of the judicial district, that this is my award and determination of the subject matter to me referred.

Witness my hand and seal at , this
day of, A. D. 188 .

. [L. S.]
Umpire.

APPROVED—The 26th day of April, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To provide at the public expense, free evening schools for the education of the children of this Commonwealth, who, from any cause, are unable to attend the public schools.

SECTION 1. *Be it enacted, &c.,* That it shall be the duty of the board of school directors or school controllers of any school district in this Commonwealth, upon the application of the parents of twenty or more pupils, above the age of six years residents of said school district, to open a free evening school for their tuition in orthography, reading, writing, arithmetic and such other branches as may be deemed advisable, and to keep open said schools for a term of not less than four months in each year, each of the said months to consist of twenty days, and each of said days an evening session of at least two hours: *Provided however,* That when the average daily attendance for one month falls below fifteen daily, said board of school directors or school controllers may, at their option, close said evening school for the remainder of said term.

SECTION 2. That upon such application the board of school directors or school controllers shall proceed, without unnecessary delay, to hire a competent teacher, and open said evening school in a convenient location: <i>Provided however</i> , That two or more contiguous school districts may at any time unite in the establishment and sup-	To be opened without delay.
	Contiguous districts may unite.

port of one or more evening schools, and contribute pro-rata to the expense of their maintenance.

Qualifications of teachers.

SECTION 3. That the qualifications of teachers for said evening schools shall be the same as those for the teachers of the public schools of the Commonwealth, as already made and provided, or as may hereafter be made and provided by law.

Expenses.

SECTION 4. That the expenses for the support and maintenance of said evening schools shall be defrayed out of the taxes raised for the support of the common schools: *Provided*, That said school board may, in making their estimates for the school year, allow and set aside a certain sum for the support and maintenance of said evening schools, and levy and collect their tax rate accordingly.

A certain sum to be set aside.

Evening high schools may be established.

SECTION 5. That the board of school directors or school controllers of any school district may, where necessary, establish an evening high school, and that the board of school directors or school controllers of two or more contiguous school districts may unite for the establishment and support of an evening high school, the curriculum of which shall be drawn up and arranged by the several school boards in joint session met and assembled, according to their best judgment and the necessities of their respective districts.

Curriculum.

Who are not to be admitted.

SECTION 6. That no pupil shall be admitted to said evening schools who is unemployed during the day, or in actual attendance upon any school during the day, public or private.

Additional teacher.

SECTION 7. That when the average daily attendance upon said schools, for one month exceeds fifty pupils, an additional teacher may be engaged and retained until the average daily attendance falls to or below forty.

Procedure when school board refuse to establish an evening school.

SECTION 8. That should any board of school directors or controllers neglect or refuse to carry out the provisions of this act, the petitioners aforesaid may present their petition to the court of common pleas of the proper county, setting forth, that application had been made to the proper board of school directors or controllers as aforesaid, and that said board had neglected or refused to carry out the provisions of this act; whereupon such court shall, after due proof of notice of the presentation of such petition having been served upon the president and secretary of such board, proceed to hear and determine, as to the necessities and propriety of the establishment of such school or schools, and in its discretion order the board of school directors or controllers to open and maintain such school or schools, with

Court to determine propriety of.

power to enforce such order by attachment or mandamus, at the discretion of the court.

SECTION 9. That the provisions of this act shall not go in force until the beginning of the regular school year, Anno Domini one thousand eight hundred and eighty-three: *Provided*, That the provisions of this act shall not apply to any part or section of the State, where special provision exists for night school.

When act to take effect

SECTION 10. That all acts or parts of acts inconsistent herewith are hereby repealed.

Repeal.

APPROVED—The 22d day of May, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To abolish the contract system in the prisons and reformatory institutions of the State of Pennsylvania, and to regulate the wages of the inmates.

SECTION 1. *Be it enacted, &c.*, That at the expiration of existing contracts the board of inspectors, wardens, or other officers of State prisons and reformatory institutions are directed to employ the convicts under their control for and in behalf of the State.

Convict labor to be employed for the State.

SECTION 2. The chief officers of the various reformatory institutions, deriving their support wholly or in part from the State, are hereby directed at the expiration of existing contracts, to employ the inmates of said institutions for and in behalf of such institutions; and no labor shall be hired out by contract.

For certain institutions.

SECTION 3. That the officers of the various county prisons, workhouses, and reformatory institutions within this Commonwealth, now letting the labor of convicts by contract, shall, at the expiration of existing contracts, employ the same for and in behalf of their respective counties.

For the county.

SECTION 4. All convicts under control of the State and county officers, and all inmates of reformatory institutions engaged in manufacturing articles for general consumption, shall receive quarterly wages equal to the amount of their earnings, to be fixed from time to time by the authorities of the institutions, from which board, lodging, and clothing and the costs of trial, shall be deducted, and the balance paid to their families or dependents; in case none such appear the amount shall be paid to the convict at the expiration of the term of imprisonment.

Convicts to receive wages.

Appropriation of wages.

Repeal.

SECTION 5. That all acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

APPROVED—The 13th day of June, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To require a brand upon all goods, wares, merchandise, or other article or thing made for sale by convict labor in any penitentiary, reformatory prison, school, or other establishment in which convict labor is employed.

Convict made goods —
to be branded.

SECTION 1. *Be it enacted, &c.*, That from and after the passage of this act all goods, wares, merchandise, or other article or thing made by convict labor, in any penitentiary, reformatory prison, school, or other establishment in which convict labor is employed, whether for the direct benefit and maintenance of such penitentiary, reformatory prison, school, or other establishment, or upon contract by the authorities of the same with any third person, all and every such goods, wares, merchandise, article or thing immediately upon the completion of the same, shall be branded as hereinafter provided, and shall not be taken into or exposed in any place for sale at wholesale or retail without such brand.

Description of
brand.

SECTION 2. That the brand herein required shall be in plain English lettering, and shall contain at the head or top of said brand the words "convict made," followed by the year and name of the penitentiary, reformatory prison, school, or other establishment in which made. That the brand aforesaid shall in all cases, when the nature of the article will permit, be placed upon the same, and only where such branding is impossible it shall or may be placed on the box or other receptacle or covering in which it is contained, and the same shall be done by casting, burning, pressing, or other such process or means as that the same may not be defaced, and in all cases shall be upon the most conspicuous place upon such article or the box, receptacle, or covering containing the same: *Provided*, That goods, wares, and merchandise shipped to points outside of the State shall not be so branded.

Brand to be placed
on the article made
if possible.

Otherwise on the
box.

Style and place of
brand.

Goods shipped out-
side of State ex-
empted.

Managers to see
that goods are
branded.

SECTION 3. That it shall be the duty of the manager, principal, or superintendent of any penitentiary, reformatory prison, school or other establishment within this Commonwealth wherein convict labor is employed, to see that the brand herein required shall be so placed as aforesaid

before such goods, wares, merchandise, or other article or thing shall be removed or taken from the place where made; and upon failure or neglect so to do, such manager, principal, or superintendent shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be sentenced to pay a fine not exceeding one thousand dollars, or undergo an imprisonment not exceeding one year, or either or both, at the discretion of the court.

Neglect to be deemed a misdemeanor.

Penalty.

SECTION 4. That it shall not be lawful for any person dealing in any such convict made goods, wares, merchandise or other article, at wholesale or retail, to have in his possession, or offer for sale any such convict made goods, wares, merchandise or other article manufactured by convict labor in Pennsylvania or any other State, without the brand provided by this act. And in all cases, where the brand aforesaid is upon the box, receptacle, or other covering in which such goods, wares, merchandise, or other article is contained, it shall not be lawful for any such person retailing to remove the same from such box, receptacle, or other covering, except as he shall retail the same to a customer for his individual use, and at all times the box, receptacle, or covering containing said brand, shall be open to the inspection or view of such customer. And any person knowingly and willfully offending against this section, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be sentenced to pay a fine not exceeding five hundred dollars or undergo an imprisonment not exceeding six months, or both or either at the discretion of the court.

Dealing in convict made goods not branded prohibited.

Removal of brand from box by retailers prohibited.

Box to be kept open to view.

Penalty for violation.

APPROVED—The 20th day of June, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

Providing for the appointment of a commission by the Governor to revise the mining and ventilating laws in the anthracite coal regions of the Commonwealth, and for an appropriation to pay the expenses thereof.

SECTION 1. *Be it enacted, &c.*, That the Governor be authorized to appoint six competent and experienced miners, and six competent and experienced coal operators, one miner and one operator from each of the counties of Schuylkill, Northumberland, Carbon, Columbia, Luzerne, and Lackawanna, who shall with the six mine inspectors for the said counties, act as commissioners to revise the mine laws and ventilation acts relating to the anthracite coal regions of

Number and residence of commissioners to be appointed by Governor.

Their duties.

Compensation of
miners.

Time limited.

How and when to
be paid.

Pennsylvania, and to report to the Legislature at its present session if possible, (and if not at the next session thereof,) such changes in said laws as will tend to the greater security of persons engaged in working in and about such mines, and secure a more prompt and strict compliance with such laws. The said coal operators and inspectors to serve without compensation, and the said six miners to be allowed five dollars per day, for each day actually employed in the work of said commission, not to exceed fifty days, and the sum of fifteen hundred dollars, or so much thereof as may be necessary to pay the same, be and is hereby appropriated out of any money in the Treasury, not otherwise appropriated, to be paid by warrant drawn by the Auditor General, on an itemized statement furnished to him by the chairman of said committee.

APPROVED—The 1st day of June, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To prevent the exemption of property on judgment obtained for fifty dollars or less, for wages for manual labor.

SECTION 1. *Be it enacted, &c.*, That no exemption of property from attachment, levy or sale upon execution, shall be allowed upon judgments for fifty dollars or less obtained for wages for manual labor.

APPROVED—The 17th day of May, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To provide payment to the miner for all clean coal mined by him.

Willful neglect to
pay miners for all
clean coal, less the
cost of cleaning,
deemed a misde-
meanor.

SECTION 1. *Be it enacted, &c.*, That from and after the passage of this act all individuals, firms, and corporations engaged in mining coal in this Commonwealth, who, instead of dumping all the cars that come from the mine into a breaker or shutes, shall switch out one or more of the cars for the purpose of examining them, and determining the actual amount of slate or refuse, by removing said slate or refuse from the car, and who shall, after so doing, willfully neglect to allow the miner in full for all clean coal left after the refuse, dirt or slate is taken out, at the same rate paid at the mine for clean coal, less the actual expense of removing said slate or refuse, he shall be deemed guilty of a misdemeanor.

SECTION 2. That any individual, firm or corporation as aforesaid, violating the provisions of this act, upon suit being brought and conviction had, shall be sentenced by the court to pay a fine of not more than one hundred dollars, and to make restitution by paying to the miner the amount to which, under this act, he would be entitled for the coal mined by him, and for which he was not paid.

Penalty.

Restitution to be made.

APPROVED—The 13th day of June, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To protect miners in the bituminous coal regions of this Commonwealth.

SECTION 1. *Be it enacted, &c.*, That after the period of three months from the passage of this act, any miner employed by an individual, firm or corporation for the purpose of mining coal, shall be entitled to receive from his employer, and failing to receive then to collect, by due process of law, at such rates as may have been agreed upon between the employer and the employed, full and exact wages accruing to him for the mining of all sizes of merchantable coal so mined by him, whether the same shall exist in the form of nut or lump coal; and in the adjudication of such wages seventy-six pounds shall be deemed one bushel, and two thousand pounds net, shall be deemed one ton of coal: *Provided*, That nothing contained in this act shall be construed to prevent operators and miners contracting for any method of measuring and screening the coal mined by such miners, as they may contract for.

Miners to be paid for quantity of coal mined irrespective of size.

76 lbs. a bushel,
2,000 a ton.Contracts for
measuring, &c.

SECTION 2. That at every bituminous coal mine in this Commonwealth, where coal is mined by measurement, all cars, filled by miners or their laborers, shall be uniform in capacity at each mine; no unbranded car or cars shall enter the mine for a longer period than three months, without being branded by the mine inspector of the district, wherein the mine is situated; and any owner or owners, or their agents, violating the provisions of this section, shall be subject to a fine of not less than one dollar per car for each and every day as long as the car is not in conformity with this act, and the mine inspector of the district, where the mine is located, on receiving notice from the check-measurer or any five miners working in the mine, that a car or cars are not properly branded, or not uniform in capacity ac-

Cars at each mine
to be of uniform
capacity.And be branded by
mine inspector.Punishment for
violation.Mine inspector to
enforce provisions
of act.

	<p>ording to law, are used in the mine where he or they are employed, then inside of three days from the date of receiving said notice, it shall be his duty to enforce the provisions of this section, under penalty of ten dollars for each and every day he permits such car or cars to enter the mine: <i>Provided</i>, That nothing contained in this section shall be construed or applied to those mines who do not use more than ten cars.</p>
Penalty for neglect.	
Certain mines to be exempted.	
Check-weighman or measurer may be employed.	SECTION 3. That at every bituminous coal mine in this Commonwealth, where coal is mined by weight or measure, the miners or a majority of those present at a meeting called for that purpose, shall have the right to employ a competent person as check-weighman, or check-measurer as the case may require, who shall be permitted at all times to be present at the weighing or measurement of coal, also have power to weigh or measure the same, and during the regular working hours to have the privilege to balance and examine the scales, or measure the cars: <i>Provided</i> , That all such balancing and examination of scales shall only be done in such way, and in such time, as in no way to interfere with the regular working of the mines. And he shall not be considered a trespasser during working hours while attending to the interests of his employers. And in no manner shall he be interfered with or intimidated by any person, agent, owner or miner. And any person violating these provisions shall be held and deemed guilty of a misdemeanor, and upon conviction thereof, he shall be punished by a fine of not less than twenty dollars, and not exceeding one hundred dollars, or imprisonment at the discretion of the court. It shall be a further duty of check-weighman or check-measurer, to credit each miner with all merchantable coal mined by him, on a proper sheet or book to be kept by him for that purpose. When differences arise between the check-weighman or check-measurer and the agent or owners of the mine, as to the uniformity, capacity or correctness of scales or cars used, the same shall be referred to the mine inspector of the district where the mine is located, whose duty it shall be to regulate the same at once; and in the event of said scales or cars proving to be correct, then the party or parties applying for the testing thereof to bear all costs and expenses thereof; but if not correct then the owner or owners of said mine to pay the costs and charges of making said examination: <i>Provided further</i> , That should any weighman or weighmen, agent or check-measurer, whether employed by operators or miners, know-
His privileges.	
Not to interfere with work.	
Not a trespasser.	
Interference prohibited.	
Penalty for violation.	
Check-weighman to credit miner with coal mined.	
Differences to be settled by mine inspector.	
Expenses of test.	
Violation of act by weighman, &c., a misdemeanor.	

ingly or willfully adopt or take more or less pounds for a bushel or ton than as provided for in the first section of this act, or willfully neglect the balancing or examining of the scales or cars, or knowingly and willfully weigh coal with an incorrect scale, he shall be guilty of a misdemeanor, and upon conviction thereof, shall be imprisoned in the county jail for three months. Penalty.

SECTION 4. All acts or parts of acts inconsistent with this act are hereby repealed. Repeal.

APPROVED—The 1st day of June, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To amend the first section of an act, entitled "An act for the better protection of the wages of mechanics, miners, laborers, and others," approved the ninth day of April, one thousand eight hundred and seventy-two, amending said act so that wages of servant girls, washerwomen, clerks, and others shall be preferred and first paid out of the proceeds of the sale of the property of insolvent debtors owing wages to such servants or employes.

SECTION 1. *Be it enacted, &c.*, That so much of section one of an act, entitled "An act for the better protection of the wages of mechanics, laborers, and others," approved the ninth day of April, eighteen hundred and seventy-two, Section one of act of April 9, 1872, amended.
 * * * * * be and the same is hereby amended to read as follows:

"That all moneys that may be due, or hereafter become due, for labor and services rendered by any miner, mechanic, laborer or clerk, servant girls at hotels, boarding-houses, restaurants or in private families, or other servants and helpers in and about said houses of entertainment, and private houses, porters, hostlers, all persons employed in and about livery stables, laundrymen and washerwomen, seamstresses and seamstresses employed by merchant tailors, milliners, dressmakers, clothiers, shirt manufacturers, and clerks employed in stores, hands, laborers, mechanics, printers, apprentices, hired for wages for salary, from any person or persons or chartered company employing clerks, miners, mechanics or laborers either as owners, lessees, contractors or under-owners of any works, mines, manufactory or other business, where clerks, miners or mechanics are employed, whether at so much per diem or otherwise, for any period not exceeding six months, immediately preceding the sale and transfer of such works, mines, manufactories or busi- Beneficiaries of act designated.

Wages for six months preceding sale, death, insolvency, &c., to be a lien.

Extent of lien.

To be first paid out
of proceeds of sale.Claim not to exceed
\$200.Existing contracts
or vested liens not
to be impaired.Claims to be filed
within three
months.

Manner.

ness, or other property connected therewith in carrying on said business, by execution or otherwise, preceding the death or insolvency of such employer or employers, shall be a lien upon said mine, manufactory, business or other property in and about or used in carrying on said business or in connection therewith, to the extent of the interest of said owners or contractors, as the case may be, in said property, and shall be preferred and first paid out of the proceeds of the sale of such mine, manufactory, business or other property as aforesaid: *Provided*, That the claim of such miner, mechanic, laborer, and clerk thus preferred shall not exceed two hundred dollars: *And provided further*, That this act shall not be so construed as to impair contracts existing, or liens of record vested prior to its passage: *And provided further*, That no such claim shall be a lien upon any real estate unless the same be filed in the prothonotary's office of the county in which such real estate is situated, within three months after the same becomes due and owing, in the same manner as mechanics' liens are now filed."

APPROVED—The 13th day of June, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To amend part of an act, entitled "An act to provide proper means of conveyance of persons, injured in or about the mines, to their homes."

Section one of act of
May 10, 1881,
amended.

SECTION 1. *Be it enacted, &c.*, That section one of the act, entitled "An act to provide proper means of conveyance of persons, injured in or about mines, to their homes," approved the tenth day of May, one thousand eight hundred and eighty-one, which provides as follows, namely: "That from and after the passage of this act, every individual, firm or corporation, engaged in the mining of anthracite coal in this Commonwealth, shall keep at every colliery, worked by said individual, firm or corporation, except as hereafter provided, an ambulance or two stretchers properly constructed, as the mine inspector of the district may deem the most suitable, for the purpose of conveying, to their homes or boarding-houses, any person injured in or about the colliery or mine of such operator or operators, while engaged at his usual or temporary employment," be and the same is hereby amended so that the same shall read as follows:

"SECTION 1. That from and after the passage of this act every individual, firm or corporation, engaged in the mining of anthracite coal in this Commonwealth, shall keep at every colliery worked by such individual, firm or corporation, except as hereinafter provided, an ambulance or wagon properly constructed, as the mine inspector of the district may deem most suitable, for the purpose of conveying to his home or place of abode any person injured in or about the colliery or mine of such individual, firm or corporation, while engaged or employed by such individual, firm or corporation: *Provided*, That where an individual, firm or corporation shall have several collieries in the same vicinity, they shall not be required to keep more than one ambulance."

Coal operators to provide ambulance or wagon for each colliery.

When several collieries may have one ambulance.

SECTION 2. That section two of the said act, which provides as follows; namely,—“If an ambulance it shall be a closed vehicle with windows, and shall be of sufficient size to convey at least two injured persons, with two attendants at the same time, and shall be provided with suitable springs, mattresses and roller-beds, which may be removed at pleasure into or from the vehicle, seats for the accommodation of attendants, and sufficient covering for the protection and comfort of the injured, and in all cases the injured person shall be conveyed to his home, or boarding-house, in said ambulance or stretcher, except as in cases hereinafter named,” be and the same is hereby amended so that the same shall read as follows:

Section two of said act amended.

“SECTION 2. The ambulance shall be a closed vehicle with windows, and shall be of sufficient size to convey at least two injured persons, with two attendants at the same time, and shall be provided with suitable springs, mattresses with roller-beds, which may be conveniently removed into or from the vehicle, with seats for the accommodation of attendants, and sufficient covering for the protection and comfort of the injured, and in all cases the injured person shall be conveyed to his home or abode in said ambulance, except in cases hereinafter named.”

Construction of ambulance.

What it shall be provided with.

SECTION 3. That section three of said act, which provides as follows: namely, “Such ambulance or stretcher shall be in charge of one of the superintendents of the colliery or collieries, and in his absence of some person convenient to the colliery, and shall always be kept under cover and in readiness for use,” be and the same is hereby amended so that the same shall read as follows:

Section three of said act amended.

Custodian of ambulance.

“SECTION 3. Such ambulance shall be in charge of the superintendent of the colliery or collieries, and in his absence or when he is present it shall be kept in a place convenient to the colliery or collieries, and shall always be kept under cover in good condition and in readiness for use.”

How kept.

Repeal.

SECTION 4. That all acts or parts of acts, inconsistent with the provisions of this act, be and the same are hereby repealed.

APPROVED—The 25th day of May, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To amend an act, entitled “An act providing the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania,” approved the eighteenth day of April, Anno Domini one thousand eight hundred and seventy-seven.

SECTION 1. *Be it enacted, &c.*, That the act entitled “An act providing the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania,” approved the eighteenth day of April, Anno Domini one thousand eight hundred and seventy-seven, be and the same is hereby amended to read as follows :

Mining-boss to be employed.

“SECTION 5. In order to better secure the proper ventilation of every coal mine, and promote the health and safety of the persons employed therein, the owner or agent shall employ a competent and practical inside overseer, to be called mining boss, who shall keep a careful watch over the ventilating apparatus, the air-ways, traveling-ways, pumps and pump timbers and drainage, and shall see that as the miners advance their excavations, all loose coal, slate and rock overhead are carefully secured against falling in or upon the travelings-way, and that sufficient timber is furnished of suitable lengths and sizes for the places where they are to be used, and placed in the working places of the miners, and it shall be also the duty of the mining boss to see to it that proper cut-throughs are made at least every thirty yards in the room pillars of the miners' places, and that on all traveling roads, holes for shelter, of sufficient size, to be made at least every thirty yards, and to be kept white washed. And the mining boss shall measure the air current, at least once a week, at the inlet and outlet, and at or near the face of the heading, and keep a record of such measurements and report the same to the inspector of his

His duties.

Cut-throughs, and holes for shelter to be made.

Air currents to be measured, &c.

district once in every month; and it shall be the further duty of the mining boss to immediately notify the agent or owner of the mine, of his inability to comply with the provisions of this section. It shall then become the duty of said agent or owner, at once to attend to the matter complained of by the mining boss, and have the matter at once come within the provisions of this section. The safety lamps used for examining mines, or which may be used in working therein, shall be furnished by and be the property of the owner of said mines, and shall be in the charge of the agent of such mine; and in all mines generating explosive gases, the doors used in assisting or directing the ventilation of the mine, shall be so hung and adjusted that they will close themselves, or be supplied with springs or pulleys so that they cannot be left standing open; and bore holes shall be kept not less than twelve feet in advance of the face of every working place, and when necessary, on the sides, if the same is driven towards and in dangerous proximity to an abandoned mine, or part of a mine suspected of containing inflammable gases, or which is inundated with water. All owners or operators of bituminous coal mines or collieries, shall keep posted in a conspicuous place about their mines or collieries, written or printed rules defining the duties of all persons employed in or about mines or collieries."

Owner of mine to be notified, when.

Duty of owner.

Safety lamps.

Doors for ventilation.

Bore holes.

Owners to keep printed rules posted.

SECTION 8. Which reads as follows :

"SECTION 8. As soon as practicable after the passage of this act, the persons exercising the office of president judge of each of the several courts of common pleas in the Fifth, Tenth and Fourth judicial districts, shall appoint one reputable miner of known experience and in practice at the time, (in the Fifth district the president judge of the court of common pleas number one shall make the said appointment,) and the Governor shall appoint two mining engineers of like repute and experience and practice at the time, who shall constitute a board of five examiners, whose duty it shall be to inquire into the character and qualification of candidates for the office of inspector of mines, under the provisions of this act, the examiners first appointed in pursuance of this section, shall meet in the city of Pittsburgh, on the fifteenth day of May next, and after being duly organized, having taken and subscribed before any officer authorized to administer the same the following oath, namely: ' We the undersign do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for appointment

Section eight of act of April 18, 1877, amended.

as inspectors of bituminous coal mines to the best of our abilities, and that in recommending or rejecting said applicants, we will be governed by the evidence of qualifications to fill the position under the law creating the same, and not by any consideration of political or other personal favors; that we will certify all whom we may find qualified according to the true intent and meaning of the act, and none others to the best of our judgments,' shall proceed to the examination of those who may represent themselves as candidates for said office; and they shall certify to the Governor the names of all such applicants as they shall find competent to fill the office under the provisions of this act, which names, with the certificate and the oath of the examiners, shall be mailed to the Secretary of the Commonwealth to be filed in his office, and shall be valid when recommended by four of the examining board. The qualification of candidates for said office of inspector of mines to be inquired into and certified by said examiners, shall be as follows; namely, They shall be citizens of the United States, of temperate habits, of good repute as men of personal integrity, shall have attained the age of thirty years, and shall have had at least five years' experience in the workings of the bituminous coal mines of Pennsylvania, and upon the examination they shall give evidence of such theoretical, as well as practical, knowledge of the working of coal mines and noxious gases, as will satisfy the examiners of their capability and fitness for the performance of the duties imposed upon inspectors of mines, by the provisions of this act. The board of examiners shall also, at their said meeting, divide the bituminous coal counties of the State into three inspection districts, as nearly equal in regard to the labor to be performed as is possible, taking into consideration the number of mines and extent of territory. At every subsequent calling of the board of examiners, this division may be revised as experience may prove to be advisable. The board of examiners shall each receive five dollars per day and all necessary expenses, to be paid out of the State Treasury upon the filing of the certificates of the examining board in the office of the Secretary of the Commonwealth, as hereinbefore provided; the Governor shall, from the names so certified, appoint one person to be inspector of mines for each district, as fixed by the examiners in pursuance of the act, whose commission shall be for four years, to be computed from the fifteenth day of May next; as often as vacancies occur by death, resignation or

otherwise in said offices of inspectors of mines, the Governor shall fill the same by appointment for the unexpired term from the names on file in the office of the Secretary of the Commonwealth until the number shall be exhausted, and whenever this shall occur, the Governor shall cause the aforesaid board of examiners to meet, who shall examine persons that may present themselves for the vacant office of inspector, in the same manner as herein provided; and the board of examiners shall certify to the Governor one person, to be commissioned by him for the office of inspector for the unexpired term; and any vacancies that may occur in the examining board shall be filled in the district where the vacancy occurred; and every four years the Governor shall appoint two mining engineers as before, and shall notify the persons exercising the office of president judge of the courts of common pleas of three of the judicial districts of the State containing bituminous coal mines, selecting them in such order as to allow each district an equal share of such appointments, each to appoint one miner, and the five so appointed shall constitute a new board of examiners, whose duties, term of service, and compensation and vacancies that may happen, shall be the same as those first provided for by this section; and from the names that may be certified by them, the Governor shall appoint the inspectors provided for in this act. Nothing in this act shall be construed to prevent the re-appointment of any inspector of bituminous mines. The inspectors of mines shall each receive for their services an annual salary of two thousand dollars, to be paid quarterly by the State Treasurer, and they shall each reside in the district for which they shall be appointed. Each inspector is hereby authorized to procure such instrument and chemical tests, and stationery, from time to time, as may be necessary to the proper discharge of his duties under this act, at the expense of the State, which shall be paid by the State Treasurer upon accounts duly certified by him and audited by the proper department of the State. All instruments, plans, book memoranda, notes, et cetera, pertaining to the office shall be the property of the State, and shall be delivered to their successors in office."

And an act, to amend an act, entitled "An act to provide the means for securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania," approved the eighteenth day of April, Anno Domini eighteen hundred and seventy-seven, "SECTION 1. *Be it enacted, &c.,*

Act of June 3, 1881,
amended

That the eighth section of the act of General Assembly, entitled 'An act to provide the means of securing the health and safety of persons employed in the bituminous coal mines of Pennsylvania,' approved the eighteenth day of April, Anno Domini eighteen hundred and seventy-seven,' be and the same is hereby amended, as follows: In the sentence "The board of examiners shall also at their said meeting divide the bituminous coal counties of the State into three inspection districts as nearly equal in regard to the labor to be performed as is possible, taking into consideration the number of mines and the extent of territory," strike out and repeal the words "said," and "three," and insert in lieu thereof respectively "next," and "four," so that said sentence will read "The board of examiners shall also at their next meeting, divide the bituminous coal counties of the State into four inspection districts as nearly equal in regard to the labor to be performed as is possible, taking into consideration the number of mines and the extent of territory," approved June three, one thousand eight hundred and eighty-one, be and the same is hereby amended to read as follows: "In the year eighteen hundred and eighty-five, and every four years thereafter, the Governor shall, as hereinafter provided, during the month of March, appoint two mining engineers of good repute, and of known experience and practice at the time, and who were not regularly and constantly employed by any firm or corporation, five months prior to the meeting of the examining board. He also shall, as hereinafter provided during the same month and every four years thereafter, notify three president judges of the courts of common pleas of the judicial districts of the State containing bituminous coal mines, whose duty it shall be, each of them to appoint one reputable miner of known experience, at least five years practical in the bituminous region of Pennsylvania, and who were in practice at least three months prior to their appointment, and had been a citizen of the United States not less than three years: *Provided*, That no person having been employed five months prior to the meeting of any examining board, as superintendent, State or county officer shall not serve on the examining board. The appointed person, the two engineers, and the three miners, shall constitute a board of examiners, whose duty it shall be to inquire into the character and qualification of candidates for the office of inspector of mines, under the provision of this act. The examining board so constituted shall, at all times, meet in

In year 1885, and thereafter Governor to appoint two mining engineers.

Qualifications.

President judge to appoint three miners.

Qualifications of miners.

Certain miners disqualified.

Board of examiners constituted.

Duties of board.

the city of Pittsburgh, on the second Monday of May, and when called together by the Governor for extra occasion, at such time and place as he may designate, and after being duly organized and have taken and subscribed, before any officer authorized to administer the same, the following oath: namely, 'We the undersigned do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for appointment as inspectors of bituminous coal mines, to the best of our abilities, and that in recommending or rejecting said applicants we will be governed by the evidence of qualification to fill the position under the law creating the same, and not by any consideration of political or other personal favor; that we will certify all whom we may find qualified according to the true intent and meaning of the act and none others,' shall proceed to the examination, which shall be in writing, of those who may represent themselves as candidates for said office. And they shall certify to the Governor the names of all such applicants as they shall find competent to fill the office, under the provisions of this act, which names, with the certificate and their percentage, and the examining board after the passage of this act, shall, when convened together for an extra session, furnish to the Secretary of the Commonwealth office, the percentage of each person of those recommended as competent to fill the office of inspector, in the examination held in the year one thousand eight hundred and eighty-one: *Provided*, That no person shall be returned as competent whose percentage shall be less than ninety per cent., and the oath of the examiners shall be mailed to the Secretary of the Commonwealth, to be filed in his office, and shall be valid when recommended by four of the examining board; the qualification of candidates for said office of inspectors of mines to be inquired into and certified by said examiners, shall be as follows; namely, They shall be citizens of the United States, of temperate habits, of good repute as men of personal integrity, shall have attained the age of thirty years, and shall have had at least five years' practicable experience in the workings of the bituminous coal mines of Pennsylvania, and upon the examination they shall give evidence of such theoretical as well as practical knowledge, and general intelligence regarding mines and mining, and the working thereof, and all noxious gases as will satisfy the examiners of their capability and fitness for the duties imposed upon inspectors of mines, by the provisions of this act. The board of examiners shall also at their said meet-

Time and place of meeting.

Form of oath to be taken.

Examinations to be in writing.

Names, &c., of applications to be sent to the Governor.

Duty of board in relation to applicants of year 1881.

Competency.

Oath of examiners to be filed.

Qualifications of candidates.

Division of State
into six districts.

Printed slips of
questions to be
given and marked.

Compensation of
examining board.

Governor to appoint
inspectors from
names certified.

Term of office.

How the additional
inspector created
by this act, to be
appointed.

Term of office.

Highest candidate
to be preferred.

Vacancies.

When extra session
of the board may
be called.

Vacancies in board
of examiners.

ing, or when at any time called by the Governor together for an extra meeting, divide the bituminous coal counties of the State into six inspection districts, as nearly equal to the labor to be performed as is possible, and at every subsequent calling of the board of examiners, this division may be revised as experience may prove to be advisable; and they shall immediately after the examination furnish each person who came before the said examining board to be examined, all questions which were given at the examination on printed slips of paper, and to be marked solved right, or wrong as the case may be. The board of examiners shall each receive five dollars per day, and all necessary expenses, to be paid out of the State treasury.

“ Upon the filing of the certificates of the examining board in the office of the Secretary of the Commonwealth, the Governor shall, from the names so certified, commission one person to be inspector of mines for each district, as fixed by the examiners in pursuance of the act, whose commission shall be for a full term of four years, to be computed from the second Monday of May, one thousand eight hundred and eighty-five. And the additional inspectors created by this act, shall be commissioned in the manner as herein provided from those filed in the office of the Secretary of the Commonwealth, whose commission shall date from the first Monday in May, one thousand eight hundred and eighty-three, until the second Monday in May, one thousand eight hundred and eighty-five: *Always provided, however,* The highest candidate or candidates in percentage shall have priority to be commissioned for a full term or unexpired term before those candidates of a lower percentage, and in case of a tie in percentage the oldest candidate shall be commissioned. As often as vacancies occur in said offices of inspectors of mines, the Governor shall commission, for the unexpired term from the names on file, the highest in percentage above ninety per centum in the office of the Secretary of the Commonwealth, until the number shall be exhausted; and whenever this may occur the Governor shall cause the aforesaid board of examiners to meet, who shall examine persons that may present themselves for the vacant office of inspector, in the same manner as herein provided, and the board of examiners shall certify to the Governor one person highest in percentage, to be commissioned by him for the office of inspector for the unexpired term; and any vacancies that may occur in

the examining board shall be filled by those or their successors in whose jurisdiction the vacancy occurred.

“Each inspector of mines shall receive for his services an annual salary of two thousand dollars, to be paid quarterly by the State Treasurer; and they shall make their residence or keep an office in the district for which they are commissioned in a reasonable time. Each inspector is hereby authorized to procure such instruments and chemical tests, stationery, and the expense of communication from time to time, as may be necessary to the proper discharge of his duties under this act, at the expense of the State, which shall be paid by the State Treasurer upon accounts duly certified by him, and audited by the proper department of the State. All instruments, plans, books, memoranda, notes, et cetera, pertaining to the office shall be the property of the State, and shall be delivered to their successors in office.”

Salaries of inspectors.

Office.

Instruments, &c.

Plans, &c.; to be delivered to successors.

“The inspectors of bituminous coal mines shall each devote the whole of his time to the duties of his office; it shall be his duty to examine the mines in his district as often as possible, and report how often he has visited each mine in the year to see that all the provisions of this act are observed and strictly carried out, and he shall make a record of all examinations of mines, showing the condition in which he finds them, especially in reference to ventilation, the number of mines in his district, the number of persons employed in each mine, the extent to which the law is obeyed, the progress made in the improvement sought to be secured by the passage of this act, the number of accidents and deaths resulting from injuries received in or about the mines, with cause of such accident or death, which record shall, on or before the first of November in each year, together with all matters and things furnished him in accordance with the provisions of this act, be filed in the office of the Secretary of Internal Affairs, to be by him recorded and included in the annual report of his department. He shall also from time to time, from date of his commission, make strict and careful examination into the condition and drainage of mines, and the owners or operators shall have surveyed by a competent mining engineer all extensions of working places and air-courses, with the direction of the air-currents, and accurately placed on the map or plan of said mine or colliery at least every six months, said map or plan to be kept at the mine or colliery for inspection by the inspectors.”

Duties of inspectors.

Record to be filed with Secretary of Internal Affairs and published.

Condition and drainage of mine to be examined into.

Extensions, &c., to be surveyed.

Map to be made and exposed.

Inspectors may enter mines at all times.

To notify owners of violations of act.

And institute proceedings against them.

Inspectors of other districts to examine mine in certain cases.

May apply to court for injunction.

Court to restrain working of mine.

Costs.

Attorney's fee limited.

On dismissal of case county to pay costs.

Proceedings in cases of dissatisfaction with decisions of inspectors.

“SECTION 13. That the inspectors may be enabled to perform the duties herein imposed upon them, they shall have the right at all times to enter any bituminous coal mine to make examination or obtain information, they shall notify the owners, lessees or agents, or mining bosses immediately of the discovery of any violation of this act, and of the penalty imposed thereby for such violation; and in case of such notice being disregarded for the space of ten days they shall institute a prosecution against the owner, owners, agent or lessee, or mining boss of the mine, under the provisions of section sixteen of this act; in case however where in the judgment of the inspector of any district, delay may jeopardize life or limb, he shall at once notify one of the inspectors of the other district, whereupon they shall at once proceed to the mine where the danger exists and examine into the matter, and if, after full investigation thereof, they shall be agreed in opinion that there is immediate danger, they shall apply in the name of the Commonwealth to the court of common pleas of the county, or in case the court shall not be in session to a judge of the said court in chambers, in which the mine may be located, for an injunction to suspend all work in and about such mine, whereupon said court or judge shall at once proceed to the case, and if the cause appear to be sufficient, after hearing the parties and their evidence as in like cases, shall issue their writ to restrain the working of said mine until all cause of danger is removed; and the costs of said proceedings including the charges of attorney prosecuting said application shall be borne by the owner or lessee of the mine: *Provided*, That no fee exceeding the sum of twenty-five dollars shall be taxed in any one case for the attorney prosecuting such case: *Provided further*, That if said court shall find the cause not sufficient then the case shall be dismissed and the costs shall be borne by the county.

“If the operator, owner or miners shall not be satisfied with any decision the inspector may arrive at, which is not in conformity with the provisions of this act, it may be lawful for such operator, owner or miner to apply by petition to the courts of quarter sessions of the county wherein the mine is located, and said court shall thereupon appoint three practical, reputable and competent and disinterested persons, whose duty it shall be to forthwith examine such mines, and make such report under oath to court of the facts as they exist or may have been, together with their opinion thereon; and if said report sustains the decisions

of the inspector, then the party making application to court shall pay the costs of such proceeding; and if the report is against such decision, then the county shall pay the costs; the report of said board shall become absolute unless exceptions thereto shall be filed within ten days, after notice of the filing thereof to the owner, operator or inspector, and if exceptions are filed the court shall hear and determine the same, and the decision shall be final and conclusive."

APPROVED—The 13th day of June, A. D. 1883.

ROBT. E. PATTISON.



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